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ABSTRACTS

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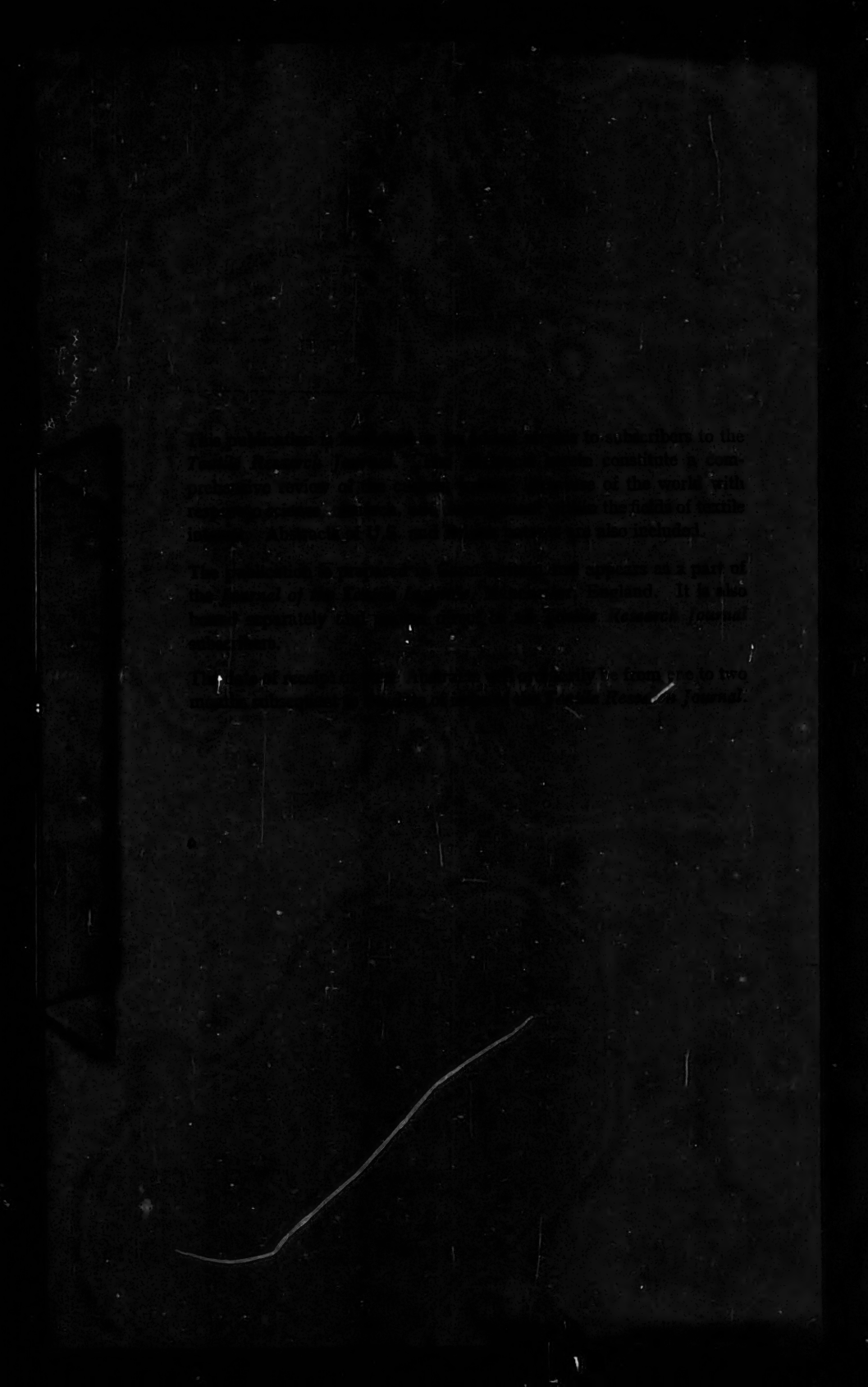


THE JOURNAL OF THE
TEXTILE INSTITUTE

ABSTRACTS

(The titles which are set in bold-face are intended as "scanning titles" for ease in classifying and filing. Where these are not substantially the authors' titles the exact titles are set in parentheses.)

1—FIBRES AND THEIR PRODUCTION

(B)—ANIMAL

Silk Reeling. ("How to Reel Scientifically.") M. S. Madhwachar. *Indian Farming*, 1950, 11, 15-17. Brief details are given of the degumming and reeling of silk from the cocoon. Some observations are made on the silk-producing industry of India. C—1B.

Coloured Wools. W. R. Lang. *Pastoral Rev.*, 1950, 60, 1075-1076. Present knowledge of the causes, incidence and effects on the wool of the following colourations is briefly surveyed: green colouration (and red, but excluding discolouration due to the use of phenothiazine drenches); blue and purple colouration; pink rot (weak or rotten wool); golden colouration; canary stain. W—1B.

Sheep: A Study of the Function of Cobalt in Nutrition. H. A. Keener and G. P. Percival. *J. Animal Sci.*, 1950, 9, 404-413. An experiment on the function of cobalt in the nutrition of sheep is reported. All sheep on a cobalt-deficient ration developed marked cobalt-deficiency symptoms which were relieved by cobalt sulphate and cobalt carbonate administered orally. B-complex vitamins, liver extract, certain amino-acids, a cobalt-free mineral mixture, fresh rumen liquid, and fresh raw milk were all without value in relieving the deficiency. Wool production of the deficient sheep was approximately 62 per cent. of that of sheep receiving cobalt. As far as could be determined, weak places in the fibre were due to under-nutrition resulting from the deficiency and not to the deficiency directly. W—1B.

(C)—VEGETABLE

Hybridization of Cotton: Inheritance of Characters of Two Male Parent Forms. D. V. Ter-Avanesjan. *Agrobiologija*, 1949, No. 4, 105-109 (through *Plant Breeding Abstr.*, 1950, 20, 114). In trials conducted in the U.S.S.R., cotton hybrids could be obtained by pollination of a variety with the pollen of two varieties, whose first and second filial plant generations combined some characters of all three parents participating in the cross. The female parent was Bolgarka (Bulgarian) 78, an American cotton (*Gossypium hirsutum*) and the male parents were the Krasnolistyi (Red Leaf) 1677 variety of *G. hirsutum*, and an Egyptian cotton (*G. barbadense*), variety 35-1. C—1C.

Cotton: Hybridization and Selection Work. T. G. Garrido. *Philipp. J. Agric.*, 1947, 13, 115-123 (through *Plant Breeding Abstr.*, 1950, 20, 113). The results of breeding work from 1932 to 1941 are presented, with descriptions of the varieties used. After selection of the parent plants, particularly with respect to fruitfulness and earliness, reciprocal crosses were made and the hybrids tested and subjected to vigorous selection. Through selection Ferguson could be made adaptable to conditions in the Philippines. Promising hybrids were obtained from reciprocal crosses of Kapas Puras with Sea Island and Ashmouni. Staple length can be increased by selection, but hybridization also is required to effect improvements in both staple length and yield. Long staple appears to be dominant over short. C—1C.

Cotton in the Belgian Congo. ("Le Coton au Congo Belge.") A. Brixhe. *Cot. Fib. trop.*, 1950, 5, 1-34. An extensive and illustrated account is given of the cotton growing industry of the Belgian Congo. The many aspects dealt with include history, cultivation (soil, sowing, picking, etc.), pests, conditions, agronomic research, ginning, oil extraction, and economic aspects. C—1C.

Mičurinite Cotton Breeders: Achievements. A. S. Svetlov. *Selekcija i Semenovodstvo* (*Breeding and Seed Growing*), 1949, No. 5, 8-11 (through *Plant Breeding Abstr.*, 1950, **20**, 112). New cotton varieties bred by I. S. Varuncjan, Iskander Mahmud ogly Veliev, and L. V. Rumševič, are listed. Some of the varieties are briefly described. Of Varuncjan's varieties the following are specially mentioned: 246, which is noted for its firm fibre; 1298 which is productive, early and resistant to diseases; 2966-1, a fine fibre cotton of Egyptian type; and 915, a variety resistant to blight and wilt. Veliev was responsible for breeding 1363, which is adapted to cultivation in the warmer districts of Azerbaidžan. The variety is productive, resistant to diseases, and has medium fine fibre. It has a larger seed boll and yields more fibre and raw cotton than does the standard 246. Rumševič bred 108 F, a variety which is productive, resistant to wilt, and has a large boll. It is earlier than Kanaš. Another promising early variety, 137F, is under trial. C—**1C.**

Jute: Effect of Sowing Time on Growth and Development. J. C. S. Gupta, N. K. Sen, and D. K. Mukherjee. *Indian J. agric. Sci.*, 1948, **18**, 129-136. Two species of jute (*Corchorus capsularis* and *C. olitorius*) have been grown in Calcutta to determine the effects of sowing time and meteorological conditions on growth and development. Results are presented and discussed. C—**1C.**

English Flax Growing: Revival. A. E. Haarer. *Cordage World*, 1950, No. 372, October, 16-17. The de-seeding, retting, drying, and scutching of flax straw at the Sussex Flax Establishment, Uckfield, Sussex, is described. Brief mention is made of the flax research station and retting in Norfolk. L—**1C.**

(D)—ARTIFICIAL

Viscose Rayon Spinning: Elimination of Faults. ("Ueber Spinnsicherheit bei der Herstellung von Viskosekunstseide.") A. Wehrung. *Kunstseide u. Zellwolle*, 1950, **28**, 84-87. Many faults in viscose rayon can be attributed to the gradual blockage of the spinnerets brought about by foreign solids, fluff, and colloidal dispersions of calcium, barium, iron, and aluminium salts and silica gel. Means by which the spinnerets may be rendered less liable to faulty working include (1) attention to composition of the viscose solution and spinning conditions, (2) ensuring maximum purity of raw materials, and (3) maintenance and cleanliness of machinery. These three groups are treated in detail. C—**1D.**

PATENTS

Cyano-ethyl Cellulose Ethers: Production. Courtaulds Ltd. and J. H. Macgregor. B.P.636,020: Appl. 10/2/1948; Filing 9/2/1949; Publ. 19/4/1950. [Addition to B.P.588,751[1].] Viscose is treated with acrylonitrile (0·5 to 1·2 mol. per anhydroglucose unit) at a temperature below 40° C., and the resultant insoluble cyano-ethyl cellulose ether is separated, dissolved or suspended in alkali, and treated with acrylonitrile (0·1 to 3 mol. per anhydroglucose unit). The product is thrown out of solution by the addition of alcohol. The soluble ethers contain about 4 to 5·5 per cent. of nitrogen, equivalent to about 0·8 $-O\cdot CH_2\cdot CH_2\cdot CN$ group per anhydroglucose unit. ([1]See *J. Textile Institute*, 1947, **38**, A563.) C.

Water-soluble Mixed Cellulose Cyano-ethyl Ethers: Production. Courtaulds Ltd. and J. H. Macgregor. B.P.636,295: Appl. 18/2/1948; Filing 17/2/1949; Publ. 26/4/1950. A cellulose ether that is soluble in alkali, but not in water, and is substituted to the extent of not more than one ether group per anhydroglucose unit (*e.g.*, the methyl or hydroxyethyl ether) is dissolved in alkali (not more than 6 per cent. concentration) and treated with acrylonitrile. The mixed cyano-ethyl ether is precipitated by adding alcohol. Products containing 2·8 and 3 per cent. of N are mentioned in the examples. C.

Polyacrylonitrile Yarns: Production. E. B. Johnson and J. Downing (British Celanese Ltd.). B.P.636,476: Appl. and filing 2/2/1949; Publ. 3/5/1950. Acrylonitrile is dissolved in a concentrated solution of zinc chloride containing a small proportion of ammonium persulphate catalyst, and the solution is heated and then left to effect polymerisation. The viscous solution is then extruded into dilute hydrochloric acid, and the yarn is washed, passed into an oil emulsion (*e.g.*, one containing olive oil and "Fixanol") for softening and then stretched in an atmosphere of wet steam. A co-polymer of acrylonitrile with vinyl chloride or methacrylonitrile may be converted into yarn in a similar manner. C.

Rayon Thread-advancing Drying Reels. Courtaulds Ltd. (for Industrial Rayon Corporation). (1) B.P.636,864, (2) B.P.636,865, (3) B.P.636,866: Appl. and

filing 25/5/1948; Publ. 10/5/1950. These inventions relate to developments in the construction of the final drying reel of a series of thread-advancing reels for the continuous production of rayon threads. (1) The reel has an inner heating chamber with inlet for the heating medium and outlet for exhaust gases and a thermostat device (*e.g.*, of the liquid expansion and diaphragm type) is used to control the opening and closing of the outlet in accordance with a pre-determined temperature to be maintained within the chamber. (2) The reel is constructed with interdigitating bar members, one set of which is hollow and communicates with conduits in the shaft through which heating fluid is supplied and exhausted. (3) The reel is constructed with interdigitating tubes, both sets of which communicate with conduits in the shaft. C.

Rayon Stretching Apparatus. British Celanese Ltd. B.P.636,926: Appl. and filing 20/10/1947; Publ. 10/5/1950; U.S.A. appl. 23/10/1946. The 15 claims relate to a process and apparatus for the treatment of a running yarn with a fluid under pressure by feeding the yarn into a smoothly diverging stream of the fluid flowing in the same direction as the yarn and issuing into a treatment zone of cross-section substantially greater than that of the said stream at its widest point. The invention is particularly designed for the strengthening, by stretching in wet steam, of cellulose acetate and other thermoplastic yarns. C.

2—CONVERSION OF FIBRES INTO FINISHED YARNS

(A)—Preparatory Processes

Improved Revolving Flat Cards. Whitin Machine Works. *Whitin Rev.*, 1950, 17, No. 2, 22-23. New card flats developed by the Whitin Machine Works are made of steel instead of the usual cast iron. The result is a flat with much greater resistance to deflection and which can be held to closer settings. C—**2A.**

Drawing Frame Maintenance. W. J. Langlois. *Whitin Rev.*, 1950, 17, No. 3, 32-36. Routine maintenance operations on drawing frames are indicated. Some diagrams are given including a lubrication chart for the Whitin model K2FS frame. C—**2A.**

Worsted Carding. ("The Standard Card Arrangement and its Variations.") *Platt's Bull.*, 1950, 7, No. 4, 84-93. The wide range of fibres processed on worsted cards necessitates considerable differences in the make-up of carding engines, and diagrams and descriptions of several are given. These are (1) the standard Bradford card, (2) the Continental card, (3) the French card, (4) the cross-bred card, and (5) the twin burring card. Since the wool is not carbonised, the removal of burrs, *etc.*, is entirely dependent on the card and the comb. Some advantages result from removal of foreign matter at the card, *e.g.*, better combing and a higher market value for noils. The advisability of employing the full complement of burr beaters is stressed, and a modification on the cards described enables this to take place. The Morel and Harmel crushers for the removal of burrs and seeds are also discussed. W—**2A.**

Worsted Carding. ("Settings, Speeds and Card Clothing.") *Platt's Bull.*, 1950, 7, No. 5, 113-119. The second article (for the first see previous abstract) consists of diagrams indicating settings, speeds, and counts and crowns of wire for standard Bradford cards on 64s quality merino, Continental cards on 64s quality merino, cross-bred cards on 48s quality, twin burring cards on Australian types and twin burring cards on Cape types. The figures are intended to be a guide to average mill practice. A diagram showing the standard speeds, directions of rotation, and directions of the wire on the forepart of the twin burring card is also given. W—**2A.**

Wool Carding. ("Principles—Settings—Production.") H. Shaw. *Canad. Text. J.*, 1950, 67, No. 23, 64, 66. Typical settings and details of card clothing are given for a blend of Australian lambs 58s/60s and short carbonised Australian wool on a two part semi-continental type set (with Garnett Breast). W—**2A.**

Principles of Carding. A. Varga. *Papers of the Second Canadian Textile Seminar*, September, 1950, 58-68. The author discusses the various roller interactions and considers the passage of fibres through the carding machine (*J. Textile Institute*, 1950, 41, A463). The application of variable speed to dividers and to licker-in rollers is also mentioned, and the Varga-Breast is described. W—**2A.**

Principles of Carding and their Application. G. Marshall. *J. Textile Institute*, 1950, 41, P725-P736. In the absence of A. Varga, the lecturer has drawn on one of his papers (see previous abstract), and this, together with the lecturer's own experience, forms the basis of the lecture. W—2A.

Carding: New French System Cuts Costs, Increases Production. V. Saxl. *Text. World*, 1950, 100, No. 10, 110-111, 220. A modification to the French system is described. The first three operations are, as usual, intersecting gill boxes. These are followed by an intersector with rub-aprons and two open gill boxes. One stage of porcupine then produces the final roving. The advantages claimed are: (1) a reduction in the number of machines and in the number of operatives, (2) fibres of staple length from 25/32 inches up to 10½ inches can be processed, (3) even tops of slightly irregular staple can be successfully handled, (4) level yarn is obtained, (5) even and well-blended yarn is obtained, thus blends of wool with other fibres can be produced, and (6) an even, soft, and lofty yarn is manufactured. W—2A.

Blending of Staple Fibres with Wool. W. Hardacre. *J. Huddersfield Text. Soc.*, 1949-50, 41, 50-65. A description is given of some fibres which may be blended with wool. These include "Fibro", "Fibroceta", "Fibrolane", nylon, Vinyon, and alginate. Some advantages over 100 per cent. wool both during processing and in the finished fabric are mentioned. The production of different types of light-wear fabrics is discussed, and properties of materials made from different blends are compared with those of 100 per cent. wool fabrics. W—2A.

Flax Spinning. Part II. Machinery and Equipment. Chap. VI. Spreading. A. V. Pringle. *Fibres, Fabrics & Cordage*, 1950, 17, No. 9, 290-294. The article describes the mechanical features of a spreadboard, with gearing calculations; also the clock spreading system and automatic spreadboards. L—2A.

(B)—Spinning and Doubling

Draft Systems for Ring-Spinning Frames for Cotton and Staple Fibre. E. Toenniessen. *Internat. Cotton Bull.*, 1950, 18, 201-206. In discussing the choice of a draft system for ring-spinning frames, the author first expresses the opinion (with reasons) that experiments in the field of very high drafting are doomed to failure. The use of single and double aprons in high drafting is briefly discussed. A drafting system that has been developed experimentally is then described and shown diagramatically. This features (among other things) a simplified construction, such that a 400-spindle machine would require no more than 52 adjusting points compared with the 960 of present frames. C—2B.

"Whitin-Climax" Ball Bearing Top Rollers. Whitin Machine Works. *Whitin Rev.*, 1950, 17, No. 3, 5-9. The construction of the Whitin-Climax ball-bearing top roller is briefly described and its advantages discussed. This type of roller can be used on all natural and synthetic fibres. Results of spinning tests are given. C—2B.

Bast-fibre Flock: Cotton-spinning Process. ("Flockenbast in der Zellwoll- und Baumwollspinnerei.") R. Hünlich. *Kunstseide u. Zellwolle*, 1950, 28, 98-99, 101. Difficulties associated with the inclusion of bast-fibre flocks in cotton and rayon yarns are discussed and practical suggestions are made for overcoming them. C—2B.

Novelty Yarns: Production on Whitin Twisters. (II). Whitin Machine Works. *Whitin Rev.*, 1950, 17, No. 3, 17-31. The technical details for making even-twist yarns and uneven spiral-twist yarns with the Whitin "C" novelty yarn attachment are described. Details of the gear trains required are given with diagrams, and a method of analysis for fancy yarns is presented. (For Part I, see *J. Textile Institute*, 1950, 41, A247.) C—2B.

Sewing Thread: Production. Rohm & Haas Co. No. 1. *Rohm & Haas Rep.*, 1950, 8, 20-24. A simplified and illustrated account is given in non-technical language of the processes involved in the conversion of raw cotton into sewing thread. C—2B.

Worsted Spinning: Quality Control. A. Vickers. *J. Bradford Text. Soc.*, 1949-50, 59-63. Some observations on, and factors contributing to, the successful conversion of top to yarn are presented. W—2B.

Continental Drawing: Mixing of Coloured Fibres. P. P. Townend and T. S. Chow. *Text. Rec.*, 1950, 68, No. 813, 81-82. The effect of doublings, drafts and number of operations on the colour mixing of wool fibres in the Continental system of drawing is examined. Yarns were spun and knitted from a 50/50 blend of black and white 64s top. The fabrics were then assessed by several examiners. Briefly, the results indicate that (1) an increase in draft or a decrease in the number of operations, using the same number of doublings, detracts from the efficient mixing of fibres; (2) an increase in the number of doublings, or an increase in the number of operations, with the same draft will improve the degree of mixing, whilst single-end drawing cannot be tolerated so far as mixing is concerned; (3) assuming the same process of manufacture, streakiness is more apparent in fabric knitted from fine yarns than in fabric from coarse yarns. W—2B.

Spinning: Worsted Spinner Has Stationary Ring Rail. Ernest L. Frankl Associates. *Text. Industr.*, 1950, 114, No. 11, 137. The Model FLM spinning frame of Sant' Andrea has a mobile spindle rail and a stationary ring rail. This innovation permits spinning with a constant tension. W—2B.

Woollen and Worsted Yarn Manufacture. ("Problems of Compound and Novel Effects.") *Wool Rec.*, 1950, 78, 1658, 1661, 1663; 1747, 1749. Some problems affecting the manufacture of these types of yarns are summarised. Details are included of machines for manufacturing fine worsted spiral and gimp yarns, medium worsted and woollen/worsted gimp yarns, heavy gimp yarns in woollen and worsteds, and spirals, knops, gimps, and print effect yarns in woollen, worsted and other textile fibres and filaments. The usual type of lay-out for processing a wide range of yarns is included. W—2B.

Worsted Drawing: New Methods. F. E. Cleyn. *Papers of the Second Canadian Textile Seminar*, September, 1950, 35-36. The article discusses the present trends in worsted drawing, particularly the tendency to use twistless slivers further down the drawing. Some data are given on the irregularity of slivers at various stages of the drawing. W—2B.

Cap Twisting. ("Aids to Efficiency.") *Wool Rec.*, 1950, 78, 1665, 1667. A general review of the cap twisting frame. It includes discussions of the dolly roller covering, spindle speeds, removal of slubs and bobbin traverse. W—2B.

Woollen Mule and Ring Spinning Machine: Comparative Economics. ("Die Grenzen der Wirtschaftlichkeit zwischen Streichgarnselfaktor und Ringspinnmaschine.") C. Sustmann. *Text.-Praxis*, 1950, 5, 693-696. The production of a mule and ring frame, each with 400 spindles and 50 g. cops, and each in charge of two operatives, has been calculated. Doffing and setting-in were assumed to take the same time on both machines. A table shows the hourly calculated output based on an average spinning speed of 4·5 draws per min. for the mule and 8 to 18 m. per min. for the frame. Although the frame runs at a higher speed than the mule, the average rate of production is not necessarily doubled with twice the yarn speed because of doffing and setting-in stops. By associating current German wages and overhead costs with the output figures of the table, a diagram is obtained which shows the line of demarcation between the industrial efficiencies of the mule and of the frame for each yarn count. With a 50 g. cop, the frame has, from these calculations, no advantages over the mule for the coarser counts of about 5 and below (metric). W—2B.

Woollen Spinning Mill: Performance Evaluation. ("Betrachtungen über die Leistungsbewertung der Streichgarnspinnerei.") C. Sustmann. *Text.-Praxis*, 1950, 5, 631-4. A method of obtaining objective comparative estimates of spinning performance using the "Refa" system is discussed. An example is given of a nomogram constructed for the determination of the theoretical and calculated performance, and thus the production efficiency, for different yarn counts and draws per minute (mule); examples are also given of curves relating the production efficiency to draws per minute and yarn count. It is pointed out that the production efficiency cannot be used as a criterion of performance owing to its dependence on speed of spinning, but a suitable measure exists in the percentage performance, *i.e.*, the ratio (actual performance × 100/optimum performance, and an example of its calculation is given. W—2B.

Tape Condenser: Fluctuations of the Roving Count and Suggestions for Getting Rid of them. ("Vorgarnnummerschwankungen beim Florteiler und Vorschläge zu ihrer Beseitigung.") G. Thieme. *Melliand Textilber.*, 1950, 31,

595-596; *ibid.*, 1950, 31, 2E, 34-45. The causes which lead to slubbing irregularities in tape condensing in woollen spinning are shown, and measures for their correction proposed. W—2B.

Wool Yarn Processing Machinery: Modern Developments. J. A. B. Mitchell. *Text. Mfr*, 1950, 76, 595-597. The following developments are described: a rotary spreader unit for use in teasing; continuous blending and oiling equipment; Continental and semi-Continental methods of carding; a suction device for removing waste ends from tape condensers. The relative advantages of mule and ring frame spinning for woollen yarns are briefly discussed. W—2B.

Comb Clearers Best for Worsted Yarns. *Text. World*, 1950, 100, 186-188. Comb type clearers are recommended for worsted yarns. The construction and working of these are briefly described. W—2B.

Flax Spinning. Part II. Machinery and Equipment. Chap. VII. Drafting and Doubling. A. V. Pringle. *Fibres, Fabrics & Cordage*, 1950, 17, No. 10, 326-328. The evolution of mechanical drafting is traced from the early days of hand spinning, with particular reference to flax preparing and spinning machinery. L—2B.

(C)—Subsequent Processes

Automatic Hollow-Cop Winder for Coarse Yarns. Whitin Machine Works. *Whitin Rev.*, 1950, 17, No. 3, 1-4. The Schweiter automatic hollow-cop winder for coarse yarns (such as jute, hemp, paper, and cotton) is briefly described. Features include variable yarn crossing ratio, closely controlled tensioning device, feeler-cone for building cop, and positive stop motion. Each spindle is self-contained, with its own gearing enclosed in an oil-tight box. Illustrations are given. C—2C.

Patents

Opener and Scutcher Light-alloy Slip Roller. F. A. Hughes & Co. Ltd. and F. Eastwood. B.P.636,065: Appl. 12/9/1947; Filing 7/9/1948; Publ. 19/4/1950. The slip roller (which is wound with a lap of cotton or artificial fibre on an opener and scutcher) comprises an extruded tube of a magnesium alloy with screw-threaded bearing rods at its ends made from a harder metal. C.

Winding Machine Tension Device Detachable Wear Members. J. Turcotte and Union Screen Plate Company of Canada Ltd. B.P.636,186: Appl. and filing 22/11/1946; Publ. 26/4/1950. A tension device for a winding machine comprises a number of contact bars arranged in rows, each having curved edges and each being fitted with flanged surface clips that are held in position on the bars by the engagement of recesses in the clips with bosses in the bars. C.

Twistless Yarn: Production. J. E. Gordon and C. G. Evans (Royal Aircraft Establishment, Farnborough). B.P.636,237: Appl. 21/8/1947 and 18/10/1947; Filing 30/7/1948; Publ. 26/4/1950. Yarn is impregnated with an adhesive (*e.g.*, starch paste or partially-condensed synthetic resin), untwisted until the fibres are parallel, and treated to set the adhesive. Suitable apparatus is also claimed. The yarn may be woven and the adhesive (if starch) removed by washing, or it may be used for reinforcing plastics, in which case the adhesive might be the plastic in question. C.

Sliver Can Feeding Device. O. C. Hinson. B.P.636,352: Appl. and filing 28/7/1947; Publ. 26/4/1950; U.S.A. appl. 5/4/1945. The invention relates to means for transferring the delivery of sliver from one can to another and suspending its production during the transfer. It is described in connection with a cotton comber and four sheets of machine drawings are provided. The coiler head has a revolving spout and is shifted automatically when a pre-determined amount of sliver has been delivered. C.

Fluid-damped Spinning Spindle Bearing. Akt. Ges. J. J. Rieter & Cie. B.P. 636,424: Appl. and filing 17/9/1947; Publ. 26/4/1950; Swiss appl. 23/9/1946. A bearing for a spinning or twisting spindle comprises a spindle bush located in a holder having an annular wall, with fluid damping between the upper end of the bush and the wall provided by two or more concentric oil layers. C.

Continuous-filament Cored Spun Yarns: Production. United Merchants and Manufacturers Inc. B.P.636,682: Appl. and filing 3/3/1947; Publ. 3/5/1950; U.S.A. appl. 7/3/1946. The invention relates to the production of a composite yarn having a core of continuous-filament nylon, polyacrylonitrile, or vinyl chloride/acetate co-polymer yarn and a wrapping of staple fibre (regenerated

cellulose, cellulose acetate, or wool) twisted about the core but not bonded to it. The core confers dimensional stability on the yarn. C.

Continuous-filament Nylon-cored Spun Yarn and Fabrics. United Merchants and Manufacturers Inc. B.P.636,688: Filing 30/5/1947; Publ. 3/5/1950; U.S.A. appl. 30/11/1946. The invention relates to the production and use in weaving of yarns having a core of continuous-filament nylon and a wrapping of rayon staple fibre, the core being interlocked with the wrapping through the application of heat (*e.g.*, compressed steam). The interlocking may be effected after the cored yarn is woven into fabric. Various proportions and dimensions of the components are covered by separate claims and the advantages of the yarns in washable garments are stressed. C.

Spindle Driving Tape Tensioning Pulley. Aktiebol. Svenska Kullagerfabriken. B.P.636,884: Appl. and filing 1/11/1946; Publ. 10/5/1950; Swedish appl. 15/11/1945. To facilitate the mounting and removal of a pulley for tensioning a spindle driving tape of the kind that is carried by a bearing in a central housing, a radial extension of the bearing is fitted with a stud that abuts against the pulley arm or other support to limit rotation of the housing. The stud may be carried by a cover that forms an integral part of the housing, or by an extension arm connected to the housing in which case there is a separate cover for the pulley having a hole through which the stud protrudes. C.

Silk Spinning and Twisting Machine Thread Guide. E. Scragg & Sons Ltd. and E. Findlow. B.P.636,934: Appl. 30/1/1948; Filing 28/1/1949; Publ. 10/5/1950. One embodiment of the invention is a slotted porcelain guide of oblong shape as seen in plan, with grooves in its long sides and one short end so that it can be held by the reciprocating guide arm of the spinning or twisting machine. C.

Travelling Bobbin Receptacle for Use when Doffing Ring Frames. Ashton Bros. & Co. Ltd., A. W. Bayes, and F. Smallshaw. B.P.636,944: Appl. 22/8/1946 and 28/9/1946; Filing 22/9/1947; Publ. 10/5/1950. The claims are for a light framework that can be hooked on to the upper or lower rail of a ring frame and form a support for a bobbin skip, box, or basket. In a preferred form the framework has frusto-conoidal end compartments into which empty bobbins can be nested. In doffing ring frames, one operative hooks the carriage on the rail and a second operative loads on to the platform part a receptacle with empty bobbins. They then pack empty bobbins into the end compartments and begin doffing, putting full bobbins into the receptacle and the readied empty ones on the spindles. The carriage can be pushed along the rail as required. C.

Oiling Textile Materials: Apparatus. F. W. Watson (to Toronto Carpet Manufacturing Co. Ltd.) U.S.P.2,528,199 of 31/10/1950. The delivery of oil to material being fed to the "picker" is automatically controlled by means of a valve in the pipe feeding the oil to the spray nozzles. The valve is controlled by means of a motor-operated cam, the operation of which is controlled by an adjustable flow meter. If one or more of the spray nozzles become clogged, the flow of oil through the remaining nozzles is automatically increased, thus maintaining a constant flow of oil to the fibres. W.

3—CONVERSION OF YARNS INTO FABRICS

(A)—Preparatory Processes

French High-speed Sectional Warping Machine. Ateliers Roannais de Constructions Textiles. *Indian Text. J.*, 1950, **60**, 750-751, 754. Some details (with illustrations) are given of a new French high-speed sectional warping machine. It consists of a headstock on which are fitted all the driving mechanisms and controls, to which is coupled the warping drum. The whole machine displaces itself on rails in front of a fixed reed holder, on which are fitted the leasing reeds, section reeds, and the guide holder. The sliding table of the reed holder retreats as the yarn is built up. The machine is operated and controlled electrically. C—**3A.**

Jute and Linen Weaving. T. Woodhouse and T. Milne. Re-written by W. Haggan. Chap. 2. **Yarn Bundling and Treatment.** *Fibres, Fabrics & Cordage*, 1950, **17**, No. 10, 324-325, 335. Discusses reeling, make-up of wet-spun and dry-spun yarns, and the dry softening process (two types of softening machines are described). Boiling of yarns for fine fabrics, and weaving unsized warps, are mentioned very briefly. L—**3A.**

(C)—WEAVING

Manufacture of Spool Axminster Carpet. A. Crossland. *Text. Mfr.*, 1950, 76, 598-603. The characteristics of the spool Axminster carpet, and the related weaving mechanism, are described. Illustrations show the spool chain, the tufting mechanism, and other parts of the loom. W—3C.

(D)—KNITTING

Yarn: Knitting Properties. A. S. Wright. ("Yarn characteristics and fabric 'pinholes'.") *Hosiery Times*, 1951, 24, (260), 15, 72. Discusses the knitting behaviour of continuous filament yarns and the relationship of yarn characteristics to good loop formation, with particular reference to plain web or stocking stitch. Diagrams. H—3D.

Knitting Machine (Circular): Design. J. B. Lancashire. ("American knitting machinery.") *Hosiery Times*, 1951, 24, (260), 17-20. First of a new series dealing with circular knitting machines built in America. Describes the American counterpart of the Spensa-Purl S.P.C. machine—the Model LH links and links knitting machine. Deals with its jacquard selecting mechanism and cam systems, and discusses the making of garments on this machine and its designing possibilities. H—3D.

Knitting Run-proof Fabric. F. K. Fogleman. ("Non-run knitted fabrics.") *Hosiery Times*, 1951, 24, (260), 31-7. Describes in detail the method for producing run-proof fabric on "Reading" fully fashioned machines. Photographs and diagrams. H—3D.

Knitted Fabric: Defects. *Knitted Outerwear Times*, 1951, 19, (2), 7. Discusses the causes of common defects in circular jersey fabric and indicates how to avoid these imperfections. Diagrams. H—3D.

(G)—FABRICS

Saxony Type Cloths. ("Some experiments with Mixtures.") *Wool Rec.*, 1950, 78, 1835-6. An account of some experimental work designed to compare cloth consisting of 50 per cent. "Fibro", 25 per cent. cotton and 25 per cent. wool with a well-proved 60 per cent. wool and 40 per cent. cotton cloth of the same design. The cloth containing "Fibro" had a smarter appearance but a papery handle. Cloth consisting of 60 per cent. wool, 10 per cent. cotton 30 per cent. "Fibro" had a softer handle than the standard. Some general observations on the use of "Fibro" with wool are included. W—3G.

Fibre Blends: Employment. *Hosiery Times*, 1951, 24, (260), 69. Note on a press statement by an assistant managing director of I. and R. Morley Ltd. It discusses the use of synthetics in blends with cotton and wool, with particular reference to the use of wool/Ardil blends for men's underwear. H—3G.

PATENTS

Automatic Shuttle-change Loom Stop Motion. Les Fils de Guillaume Diederichs. B.P.636,062: Appl. and filing 27/8/1947; Publ. 19/4/1950; French appl. 12/5/1943. The invention relates to a tappet device located in the path of the shuttle carrier to effect stoppage of the loom when, during shuttle change, the shuttle is not ejected. C.

Circular Loom Beat-up Motion. Saint Frères. B.P.636,091: Appl. and filing 8/1/1948; Publ. 19/4/1950; French appl. 25/1/1947 [Addition to B.P.597,334[1]]. A device for combing warp ends and beating up the weft in a circular loom comprises a set of two wheels about which a spiked belt is stretched, and the whole system is arranged outside the shed behind the shuttle and partakes of the movement of the shuttle. The spikes on one side of the belt engage the warp ends. One wheel may be positively driven. ([1]See *J. Textile Institute*, 1948, 39, A478.) C.

Warp Tying Machine Thread Isolating Device. Koefoed, Hauberg, Marstrand og Helweg, Akt. Titan. B.P.636,175: Appl. and filing 1/3/1946; Publ. 26/4/1950; Danish appl. 23/5/1940. A device for isolating single threads from a warp sheet (for use with a warp tying machine) is directly guided by means of a yieldingly disposed feeler that rests against the edge thread. The isolating member may have two branches like scissor blades with pointed or bevelled ends arranged so that a larger or smaller notch is formed between the ends for engagement with the thread. Further, the isolating member may have an isolating

pin that can be rotated so as to adjust the notch according to the thickness of the thread. C.

Hollow-pressed Sheet-metal Shuttle. E. D. Gomme. B.P.636,539: Appl. 2/1/1947; Filing 2/1/1948; Publ. 3/5/1950. The claim is for the manufacture of loom shuttles from two or more parts hollow-pressed from stainless steel or aluminium alloy sheet and secured edge to edge by butt welding or by means of adhesives of the type of "Redux" or "Araldite". C.

Carpet Loom Tuft Tube Scanning Device. Platt Brothers & Co. Ltd. and F. B. Schofield. B.P.636,597: Appl. 24/10/1946; Filing 24/9/1947; Publ. 3/5/1950. The invention relates to the provision on a carpet loom of a mirror device whereby the weaver can clearly see the position of the tube frames carrying the bobbins of tuft yarn in the carrying chains when they are in the transferring position so as to satisfy himself that the tubes enter correctly between the groups of warp. C.

Circular Knitting Machine Dial Driving Gear. W. E. Booton Ltd. and W. E. Booton. B.P.636,613: Appl. and filing 21/6/1947; Publ. 3/5/1950. The claim is for a gear drive for the dial of a rotary dial and cylinder knitting machine. It drives the dial from the cylinder itself and at the same speed, and it is disconnected in the act of swinging the dial away from the cylinder. C.

Automatic Bobbin Doffer Carriage Traversing Mechanism. British Cotton Industry Research Association, J. Gregory, G. A. R. Foster, and H. Catling. B.P.636,760: Appl. 16/7/1947; Filing 14/7/1948; Publ. 3/5/1950. The object of the invention, embodied in 18 claims, is to provide for the automatic traversing of the Shirley "carriage doffer" from station to station along a ring frame after each completed doffing cycle. The mechanism comprises starting, driving, and stopping means for the carriage, means actuated by the doffing mechanism for (1) unlatching the carriage and (2) actuating the means for stopping the doffing mechanism and starting the carriage drive, and means in timed relation with the re-engagement of the latching mechanism at the next position to actuate the means for stopping the carriage drive and starting the doffing. (See B.P.597,887; *J. Textile Institute*, 1948, **39**, A473.) C.

Silica Fibre Batts and Fabrics: Production by Acid Leaching of Glass Materials. H. I. Thompson Co. (assignees of L. Parker and A. Cole). B.P.636,893: Appl. and filing 24/4/1947; Publ. 10/5/1950; U.S.A. appl. 11/5/1946. The claims relate to the conversion of batts (including resin-bonded batts) and fabrics composed of fusible glass fibres into corresponding products in which the ratio of SiO_2 to metallic oxides is more than 9:1, by leaching out the metallic oxides with hydrochloric acid followed, if desired, by firing, to dehydrate the fibres and burn off any resin. The specification records observations on the dimensions of fibres so produced, including the statement that the fired fibres sometimes display helical markings. C.

Elastic Fabric Selvedge: Knitting. Hemphill Co. B.P.636,915: Appl. and filing 1/8/1947; Publ. 10/5/1950; U.S.A. appl. 14/6/1939. A method of knitting a selvedge at the beginning edge of an elastic fabric (*e.g.*, a seamless stocking top) includes the steps of drawing a number of rounds of elastic yarn so that at each round a loop of the elastic yarn will be temporarily formed at what are to be alternate needle wales in the top, then drawing a course of non-elastic yarn by forming a needle loop at each needle wale and a sinker loop between each needle loop and drawing the non-elastic yarn while simultaneously casting off all the previously drawn rounds of elastic yarn so that they will be held in such a manner that each of them is threaded through all the sinker loops of the course of non-elastic yarn, each round of elastic yarn lying parallel to the next and all being threaded through the sinker loops in the same direction. The method may include the step of tucking the elastic yarn at alternate wales with the non-elastic yarn and knitting the latter in each wale so that stitches will be drawn through previously non-elastic stitches and through tuck stitches comprising a loop of each type of yarn. The claims include special forms of stocking tops. C.

Variable-speed Knitting Machine Drive. Allmanna Svenska Elektriska Aktiebolaget. B.P.636,938: Appl. and filing 20/2/1948; Publ. 10/5/1950; Swedish appl. 22/2/1947. The invention relates to a development in commutator motor driven knitting machines of the type covered by B.P.589,646[1] for lowering the

speed when narrowing, or for other changes of speed, under the control of lugs on the lug chain of the machine. The circuit diagram is reproduced. (¹See *J. Textile Institute*, 1947, **38**, A575.) C.

Circular Warp Knitting Machine. F. J. Ford. B.P.636,963: Appl. and filing 8/8/1947; Publ. 10/5/1950; U.S.A. appl. 14/6/1940. A circular warp knitting machine, for making pads or padding comprising rows of coarse roving knit together by threads across and around the rows, includes the combination of alternate warp thread guides and needles for a second yarn other than the warp, with a second set of needles for knitting with the warp or the other yarn in sequence. The inventor makes 19 claims and provides nine sheets of machine drawings. C.

Stitched Adhesive Backing Carpets and Rugs: Manufacture. G. Michaelis. B.P.636,977: Appl. 7/11/1947; Filing 29/10/1948; Publ. 10/5/1950. In a process for making carpets and rugs without weaving, yarns of wool, cotton, *etc.*, are laid parallel and close together (*e.g.* on a sizing machine), stuck to a temporary backing (*e.g.*, gummed paper) and the sheet (cut into strips if desired to introduce coloured patterns) is laid down on a permanent backing and fixed to it by transverse lines of stitches. As stitching proceeds the sheet is forced into corrugations so that the yarns form into pile loops. The temporary backing is then removed and the loops are left intact or cut. C.

Chenille Looping Machine for the Manufacture of Artificial Furs. J. Finkelsteinas. U.S.P.2,523,690 of 26/9/1950. The machine provides a means of making loops in a chenille yarn, by pushing the yarn into stationary jaws which grip the closed end of the loops. At the same time the open end is wrapped by string from a reel, which is carried in a flyer rotating on the rod holding the stationary jaws. An intermittent pull on the chenille already looped drags the last-made loop from the jaws, along with the wrapping string, and allows a new length to be pushed in and wrapped. W.

4—CHEMICAL AND FINISHING PROCESSES

(B)—Boiling, Scouring, Degumming and Washing

Enzymes for Desizing. Rohm & Haas Co. *Rohm & Haas Rep.*, 1950, **8**, No. 2, 7-9, 25. A simplified, popular description is given of the action of enzymes in the desizing of textiles. Brief details are given of the enzyme preparations made by the Rohm and Haas Company, viz., Rhozyme-PF, -DX, and -LA, for use in desizing. C—**4B.**

Controlled Wool Washing. ("Le Lavage Contrôlé de la Laine.") M. Robinet. *Teintex*, 1950, **15**, 503-517. A review of raw wool washing, in which mechanical, physical, and chemical factors involved in wool washing are discussed. These include the relation between the output of wool efficiently washed and the speed of its passage through the scouring bowls; the question of temperature, 60° to 80° C. being regarded as the critical range; the parts played by water, alkali, detergents, and electrolytes. The provision is suggested of a central unit from which soda solution can be distributed to the bowls by controlled means. The use of non-ionic detergents is discussed, a laboratory method being described for testing their industrial efficiency. There is need for a method for determining the amount of active detergent in very dilute solution. W—**4B.**

Raw Wool: Study of the Detergent Power of Products for Washing. ("Étude du Pouvoir Détergent des Détersifs Préconises pour le Lavage des Laines en Suint.") M. Van Overbeke, L. Lefebvre, and L. Raux. *Bull. Inst. Text. France*, 1950, No. 21, 59-66. This laboratory method reproduces industrial conditions of raw wool washing. 300 g. of carded raw wool are washed in batches of 30 g. in a 5-bowl scouring set, the first and fifth bowls containing water, the second sodium carbonate, and the third and fourth detergent. To evaluate increasing concentrations of a given detergent, its performance is compared with that of potassium oleate with 40 per cent. oleic acid for the same quality of raw wool. Tests for amount of cleansing are made by Soxhlet extraction, for the amount of ash at 700° C., and for whiteness by colorimetric determination; *pH*, rhodamine and Pauly tests are made on the washed wool. Of the six detergents tested, the most satisfactory are non-ionic, especially those of the lauric acid type condensed with ethylene oxide, which keep their detergent properties in a slightly acid medium. W—**4B.**

Scouring: Proposed Tentative Test Methods for Evaluation of Continuous Scouring of Raw Grease Wool. American Association of Textile Chemists and Colorists, Wool Scouring Committee. *Amer. Dyest. Rep.*, 1950, **39**, P813-815. This tentative method covers the laboratory evaluation of continuous wool scouring. Standard apparatus and operating conditions are specified for purposes of calibration. The criterion for scouring effectiveness is the extent of grease removal. The scouring equipment has a suint bowl, a scouring bowl and a rinse bowl. The grease is rapidly extracted by agitating the scoured and dried wool in carbon tetrachloride, which is then evaporated to determine the grease residue. The grease residue is calculated as per cent. fat = 44·6 × weight of residue. The method is adaptable to the comparison of detergents and other chemical factors and of mechanical variables. W—**4B.**

Scouring Raw Wool. ("Contribution à l'étude du lavage moderne de la laine brute.") *Rev. Text.*, 1950, **48**, 89-95. Tables show the average amounts of impurities in wool and the yields of wools of various origins. Details are given of wool washing, using bowls containing (1) soap and a synthetic scouring agent, and (2) a synthetic scouring agent and formic acid (scouring at the iso-electric point). Wools suitable for iso-electric scouring are listed. The advantages of the Duhamel process (suint scouring) are stated. The detergency of non-ionic scouring agents is discussed in relation to foaming, and to the control of *pH* and of temperature. If scouring is done with solvents or at low temperatures, subsequent scouring in water is necessary. W—**4B.**

(D)—Milling

Milling: Crease Resistance of Wool Cloths. D. R. H. Williams. *Wool Rec.*, 1950, **78**, 1644. A letter referring to a previous article. The writer points out the advantages of the Combined Milling and Scouring machine. Pieces being heavily milled are never moved from the machine, thus "plasticity" is not destroyed. The writer has found that the use of lower temperatures than those stated has given satisfactory results. Creasing in scouring can be avoided if the pieces are kept sufficiently wet throughout the process. W—**4D.**

Milling: Crease Resistance of Wool Cloths. ("Its Relationship to Scouring and Milling.") *Wool Rec.*, 1950, **78**, 1571-2, 1575. Some causes of rigging, creasing, marking, and bursting are mentioned and methods for preventing these faults are suggested. The subjects discussed include shaking-out when using the rotary milling machine, bagging of the pieces, moisture and temperature in crabbing, avoiding excess soap or moisture in milling, *etc.* W—**4D.**

(E)—Drying and Conditioning

Moisture Conditioning of Textiles. ("Le Conditionnement Hygrométrique des Textiles.") M. E. Burlet. *Bull. Inst. Text. France*, 1950, No. 18, 41-51; No. 19, 33-49. The moisture conditioning of textiles is reviewed at some length under (1) definition, (2) reasons for regain standards, (3) statutory requirements (French), (4) principles and practice, (5) testing, (6) technical and commercial aspects of regain, (7) elements and conditions of regain, dealing with the retention of moisture in textiles (*rémanence*), definition of the standard atmosphere, and the determination of the scientific basis of the rate of moisture regain, and (8) direct measurement of normal average weight of textiles in the standard atmosphere and the adoption of this method to current practice. C—**4E.**

(I)—Dyeing

New Du Pont Products: Dyes and Finishes. E. I. du Pont de Nemours. *Du Pont tech. Bull.*, 1950, **6**, 1-9. Details are given of the following new products produced by the du Pont company: Acetamine Fast Yellow 4RL, Celanthrene Fast Pink 3B, Pontamine Diazo Scarlet P Conc., Pontamine Fast Blue BLL, and Methacrol EL (a nylon hosiery finishing agent). C—**4I.**

Acid Vat-dyeing: The Method and its Associated Difficulties. ("Kritik und Praxis des Küpensäureverfahrens.") J. A. Heyder and G. N. Sandor. *Text. Rdsch.*, 1950, **5**, 179-186. An attempt is made to show that, despite the technological difficulties encountered in using the acid-vat process, its employment is justified by the excellent results, *e.g.*, evenness and penetration, and by the fact that it is possible to make use of the vat-dyeing process for cellulosic materials, particularly regenerated celluloses, without the excessive swelling produced by strongly alkaline solutions. The preparation of various baths is described in detail and practical hints for all stages of the process are given. C—**4I.**

Cellulose Acetate Rayon Fabrics: Dyeing and Printing. H. P. Baumann. *Text. J. Austral.*, 1950, **25**, 504, 506-507, 529-532, 534. A comprehensive survey is made of various methods of dyeing and printing cellulose acetate rayon fabrics. The development of dyestuffs and dyeing methods for cellulose acetate is outlined. Printing formulæ are given for dispersed acetate colours, acid and chrome colours, basic colours, vat colours, pigment colours, oxidation blacks, and also for discharge printing. C—4I.

Dyeing and Finishing of Nylon Hose. E. I. du Pont de Nemours. *Du Pont tech. Bull.*, 1950, **6**, 10-15. Practical aspects of the dyeing and finishing of nylon hosiery are discussed. Pre-setting, scouring, dyeing, dyeing problems when yarns of different affinities are used for leg and welt, and finishing are considered, including finishing agents or dyes used. Nylon blends in men's and children's hosiery are also mentioned. C—4I.

Acid, Chromacyl, Chrome, and Direct Dyes on Nylon: Fastness to Sunlight. E. I. du Pont de Nemours. *Du Pont tech. Bull.*, 1950, **6**, 39-47. Nylon piece goods dyed with acid, Chromacyl, chrome, and direct dyes have been exposed, under glass, to Florida sunlight. The respective sunlight ratings have been evaluated so that comparisons can be made with the corresponding Fade-Ometer fastness. Light fastness data are presented for over 90 dyes of the above types. C—4I.

Dyeing of Spun Nylon Yarns and Nylon Staple. S. G. Turnbull, jun. *Du Pont tech. Bull.*, 1950, **6**, 16-23. After briefly considering the properties of nylon staple yarn, the author deals with dyeing equipment and scouring methods used for nylon and nylon blends. The selection of dyestuffs for nylon staple is discussed, and a list of suitable acid, Chromacyl, and direct dyes is given. Further consideration is given to the application of acetate dyes to spun nylon and nylon staple, and to the dyeing of nylon blends. Six methods are indicated for the dyeing of blends of nylon and cellulosic fibres, with a list of some suitable dyes. [11 references.] C—4I.

Wool Dyeing: The Influence of the Cuticle in the Dyeing of the Wool Fiber. H. E. Millson and L. H. Turl. *Amer. Dyest. Rep.*, 1950, **39**, No. 20, P647-P656. See *J. Textile Institute*, 1950, **41**, A295. Several photomicrographs are included. W—4I.

Package Dyeing: Review. T. H. Jackson. ("Developments in package dyeing.") *Hosiery Times*, 1951, **24**, (260), 61-3, 66. Reviews the work done by various Canadian mills on the dyeing of Barber-Colman cheeses and notes the points which must be observed to ensure successful dyeing. Dyeing equipment, preparation of the yarn previous to dyeing, and the use of direct, sulphur, naphthol and vat dyes are discussed. H—4I.

Wool (Chlorinated): Dyeing. ("Fibre properties in relation to knitwear dyeing-conclusion. Tone-in-tone effects on wool.") *Hosiery Times*, 1951, **24**, (260), 47-51. Discusses practical conditions for the dyeing of chlorinated wool for the production of patterned effects. H—4I.

Wool/Nylon Unions: Dyeing. H. R. Hadfield. ("Dyeing of wool/nylon half-hose.") *Hosiery Times*, 1951, **24**, (260), 55-6. Report of an address to the Midland Section of the Society of Dyers and Colourists. Discusses the differences between wool and nylon in their capacity for the absorption of acid dyestuffs, and the subsequent effects in the dyeing of wool/nylon unions. H—4I.

(K)—FINISHING

Formaldehyde Resin: Use in Textile Finishing. ("Ueber die Verwendung von Formaldehyd und dessen Derivate, allein oder in Verbindung mit Harnstoff und dessen Derivate für die Veredlung von Textilmaterialen.") O. Litvay. *Prakt. Chem.*, 1950, 53-54. The attention of the Austrian textile industry is drawn to the advantages of employing formaldehyde resins and urea-formaldehyde resins in textile finishing processes. These advantages include increased shrink-, crease-, and flame-resistance. C—4K.

Effect of Resin Treatments on the Fastness Properties of Dyed Acetate Rayon and Spun Rayon. E. I. du Pont de Nemours. *Du Pont tech. Bull.* 1950, **6**, 33-38. Du Pont direct and developed acetate colours were applied to acetate rayon and to spun nylon. Portions of each dyeing were treated to retain approximately 5 per cent. urea-formaldehyde and 5 per cent. melamine-formaldehyde. Both control and resin-finished dyeings on acetate rayon were

subjected to light (Fade-Ometer), washing, sublimation, rubbing, and gas fume fading tests. The spun nylon samples were evaluated for differences in light fastness. In general, neither resin adversely affected the fastness to light, rubbing, and sublimation of dyed acetate rayon. Both resins, particularly melamine-formaldehyde, improved the resistance to gas fume fading of the sensitive direct acetate dyes. The fastness of the developed dyes was comparatively unchanged in this respect. Full results are tabulated. C—4K.

Shrinkage in Rayon Stockings. ("Ueber das Schrumpfen von Kunstseide in Strümpfen.") H. Bach. *Kunstseide u. Zellwolle*, 1950, **28**, 75-83. A concise outline is given of the precautions which must be taken to ensure even shrinkage of yarn and products; these include segregation of batches; similar winding and spinning conditions throughout, care being taken to avoid excessive tension; and even shrinking during dyeing. However, in spite of such precautions, unexpected shrinkage may arise, viscose rayon appearing to be more prone to this than is cuprammonium rayon. This appears to be due mainly to structural differences within a batch. A series of experiments were carried out to investigate the phenomenon; these are described and detailed data given. C—4K.

Finishing Oil for Wool. Kearny Manufacturing Co. *Text. Industr*, 1950, 114, No. 11, 147, 187. Lubriknit W is an oil finish for skein dyeing woollen, worsted, and hair yarns. It can be applied directly in the hot dye bath. W—4K.

Wet Finishing of Woollens and Worsteds: Problem. H. L. Hallas. *Text. Rec.*, 1950, **68**, No. 812, 95-96. Causes of unlevel dyeing and methods for their correction are discussed. Special reference is made to washing-off after scouring and milling, the presence of residual oil from spinning, and faulty carbonising. W—4K.

Scouring, Milling and Dyeing Wool: Rapid Methods. E. I. Noble. *Text. J. Austral.*, 1950, **25**, 806-811, 852. Methods for reducing processing times without losing quality in the finished goods are discussed. Special reference is made to the use of synthetic detergents in loose wool scouring and carbonising, in woollen and worsted piece scouring, and in milling. The advantages of the use of phosphoric acid for milling, and for removing iron stains, are stated. Successful procedures are described for acid milling in the grease, followed by carbonising, neutralising, scouring and dyeing, and for carbonising in the grease, followed by neutralising, scouring and milling. Rapid methods for wool dyeing are also reviewed. W—4K.

Finishing: Further Researches in—. C. S. Whewell. *J. Huddersfield Text. Soc.*, 1949-50, **41**, 90-104. Strength, resistance to wet abrasion, staining, reduction in work to stretch and fluidity as means of assessing damage to wool are considered. The effects on shrinkage by soap and other media in milling and washing are discussed. Suggestions are given for the production of dimensionally stable fabrics and the methods of preventing felting. Scouring, milling and raising fabrics made from blends of wool and rayon or nylon are described. W—4K.

Wool: Shrink-Resistant Treatment. W. A. Edwards. ("Anti-shrink finishes on woollens.") *Hosiery Trade J.*, 1951, **58**, (685), 38. Report of lecture to the Society of Dyers and Colourists, Bradford junior branch. Discusses briefly the mechanism of wool shrinkage and the methods of shrinkage testing, and reviews the numerous anti-shrink processes available. The modifications of dyeing techniques required for treated fabrics were discussed by Mr. A. Holden. H—4K.

(L)—Proofing

Moth-Proofing Tests: Anomalous Results. R. W. Moncrieff. *Nature*, 1950, **166**, 659. An explanation is suggested for the apparently anomalous results previously reported (*J. Textile Institute*, 1950, **41**, A500). When the proofing agent was applied to the fabric along with a dyestuff from a neutral bath at 100° C., and the dyebath was acidified only just before the removal of the fabric from it, an unsatisfactory proof was obtained. It is suggested that the proofing agent was probably supplied in the form of a sodium salt, which has little affinity for wool, and that, as acidification took place only just before the fabric was removed, the free sulphonic acid became attached irregularly to the fabric in the short time available. Washing may then have caused redistribution of the proofing agent, thus improving the quality of the proof. W—4L.

Zirconium Compounds in Water-proofing. W. B. Blumenthal. *Ind. Engng Chem.*, 1950, **42**, 640-642. Zirconium salts used alone render textiles somewhat water repellent, and when used with soap and wax emulsion a much higher quality of repellency results. Water repellence so imparted is generally lost by laundering or dry-cleaning, but may be stabilised to some extent by treatment with an additional solution of a metal salt having a strongly acid hydrolysis. La—**4L.**

(M)—SUBSEQUENT PROCESSES

Labelling. R. Diplock. *Laundry J.*, 1950, No. 2895 (Dec. 29), 6-7. With increase in range of textile fibres it is vital that textile labelling should be universally applied. The Secretary of the R.T.S.A. gives his personal views on the matter with suggestions as to methods and types of mark. La—**4M.**

PATENTS

Asymmetrical Polyazo Dyes. Ciba Ltd. B.P.636,006: Appl. and filing 20/3/1947; Publ. 19/4/1950; Swiss appl. 11/4/1946 and 11/2/1947. The invention relates to a series of asymmetrical polyazo dyes which are obtained by coupling tetrazotised 3:3'-dihydroxy-4:4'-diaminodiphenyl with a component that contains a sulphonic acid group and coupling the resultant diazo-azo compound with a component that is free from sulphonic acid groups. The medium contains at least 25 per cent. of pyridine calculated on the weight of the coupling mixture. The examples mention fast dyeings on cellulosic fibres in the reddish-blue to dark violet range, particularly those obtained after coppering. C.

Jade Green Vat Dyes. Cincinnati Chemical Works Inc., and Ciba Ltd. B.P. 636,008: Appl. and filing 26/3/1947; Publ. 19/4/1950; U.S.A. appl. 26/3/1946 and 20/3/1947. The claim is for a process for the manufacture of etherified hydroxydibenzanthrones or hydroxy*iso*dibenzanthrones by heating a dioxodibenzanthrone or a dioxo*iso*dibenzanthrone (if desired, in admixture with the corresponding dihydroxy-compound) with an alkylating agent in an inert high-boiling solvent in the presence of an acid-binding agent and a reducing agent of the type of α-naphthol, tetrahydronaphthalene, or hydrazine sulphate. The dyes are of the Jade Green series. C.

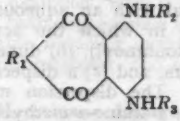
Vapour Pressure Differential Humidifying System. W. W. Cummings, jun. B.P.636,056: Appl. and filing 25/7/1947; Publ. 19/4/1950; U.S.A. appl. 11/1/1940 and 24/9/1940. The claim is for a method (and plant) for humidifying air in a controlled space which involves "creating a high vapour-pressure differential" by heating separately a quantity of water and air, causing intimate contact between the air and water so that the water is vaporised (*e.g.*, by spraying the water into the air) and the vapour pressure is more than one inch (Hg), and releasing the vapour at such high vapour pressure into the controlled space. Conventional humidistats, ball traps, fans and the like are used to control the heating and flow systems. The specification contrasts the low volume of air that needs to be circulated by this method with the very large volumes required for humidifiers of the washer type. Thus, the circulation of 250 cubic feet per minute, evaporating 4 gallons of water per hour with an input of 66,000 B.Th. U. per hour is claimed to be sufficient for a room of 50,000 cubic feet. C.

Electronic Control for Drying Machine. Fielden (Electronics) Ltd. and L. Witcombe. B.P.636,092: Appl. 15/1/1948; Filing 30/12/1948; Publ. 19/4/1950. The invention relates to the control of the speed of a drying machine according to the moisture condition of the material as indicated by the Fielden electronic hygrometer (B.P.619,534). An a.c. voltage derived from the hygrometer is amplified and fed to the primary of a transformer. This has two secondaries, one having its centre point earthed and its extremities connected to the outer grids of two thermionic multi-electrode valves connected in parallel, and the other being connected across one diagonal of a resistance bridge, at least one arm of which is a non-linear type of resistance, *e.g.*, a lamp. Across the other diagonal of the bridge is connected an amplifier, the output of which has one terminal connected to earth and the other connected to the inner grids of the two valves. The grids are connected together and to an additional valve circuit that constitutes an asymmetrical multi-vibrator. The cathodes are connected together and earthed through a biassing resistance, and the anodes are connected to the high-tension supply through two relays that enable the speed control motor to run in one or other direction when supplied with current by the response of a special relay.

The bridge has at least one variable resistance which is set to balance the bridge at a given moisture content. C.

Drying Machine Blowing Nozzles. J. Dungler. (1) B.P.636,130: Appl. and filing 21/4/1947; Publ. 26/4/1950; French appl. 30/4/1946. (2) B.P.636,154: Appl. and filing 17/2/1948; Publ. 26/4/1950; French appl. 18/2/1947. (1) The tubular nozzle members for hot air in a drying machine (*e.g.* a stenter frame), have at least two openings (*e.g.*, slits or rows of holes) arranged so that the discharge from the front part is opposed to the flow of the material (*e.g.*, cloth) and the discharge from the middle part is perpendicular to the flow.
(2) The blowing nozzles are fitted with partitions in the outflow zones between the individual nozzles so as to subdivide each outflow space to superposed passages of different length, the shortest passage serving the marginal portions of the material and the longest passage the central portion. C.

Carbazolised Pyrene Vat Dyes. Ciba Ltd. B.P.636,205: Appl. and filing 29/3/1947; Publ. 26/4/1950; Swiss appl. 29/3/1946 and 19/2/1947. The invention relates to the manufacture of a series of vat dyes with complex ring systems by the ring closure with carbazolising agents of compounds of the general type



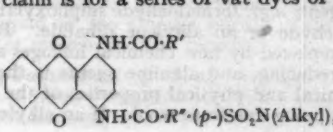
where R_1 is a pyrene residue and R_2 and R_3 are vattable residues, *e.g.*, anthraquinone or 1:1′-anthrimide residues. A useful parent material for the carbazolisation is the condensation product of 3′:6′-dichloro-3:4-phthaloylpyrene and 1-amino-anthraquinone. The vat dyes so obtained may be halogenated. The examples mention brown, olive-green, and almost black dyeings on cotton. C.

Two-speed Tumbler Drying Machine. J. Haydock (Haydock Brothers Ltd.). B.P.636,220: Appl. 27/5/1947; Filing 23/2/1948; Publ. 26/4/1950. The claim is for a two-speed motor drive for a rotary-cage drying machine, providing a high speed (*e.g.*, 50 m.p.h.) for one period and a slow speed (*e.g.*, 25 m.p.h.) for a period about one-quarter of the former. During the high-speed period, the textile materials cling to the perforated wall of the cage and hot air passes through them. During the slow period, they tumble away and roll over sufficiently to secure a soft "handle". C.

Cellulose Ester Textile Materials: Dyeing. British Celanese Ltd. B.P.636,501: Appl. and filing 6/10/1947: Publ. 3/5/1950; U.S.A. appl. 10/10/1946 [Addition to B.P.583,349[1]]. The original patent claimed the use of an aqueous-alcoholic solution of a dye containing a thiocyanate as swelling agent. It is now claimed that the addition of a small amount of an alkali hydroxide leads to deeper shades. A typical dye liquor for cellulose acetate, for example, contains sodium thiocyanate (2,000 g.), sodium hydroxide (300), and Celliton Blue AF (500) in 75 litres of 92 per cent. alcohol mixed with 25 litres of water. The dyeing is deeper in shade and much faster to gas fumes than when the caustic soda is omitted. ([1]See *J. Textile Institute*, 1947, **38**, A222.) C.

Full-width Cloth Dyeing Machine. J. Dungler. B.P.636,554: Appl. and filing 1/5/1947; Publ. 3/5/1950; French appl. 20/5/1946. A machine for the continuous dyeing of fabrics in open width comprises a roller padding machine combined with means for feeding the fabric along a spiral course in which it passes at least twice in the same direction through the padder and is squeezed during the last passage before leaving the machine. C.

Sulphonamido-anthraquinone Vat Dyes. Ciba Ltd. B.P.636,691: Appl. and filing 10/7/1947; Publ. 3/5/1950; Swiss appl. 11/7/1946 and 11/7/1947 [Addition to B.P.605,466[1]]. The claim is for a series of vat dyes of the general formula

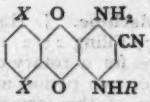


wherein the two alkyl groups may be linked to form a ring (giving a sulphomorpholide group) and any substituents in the Ring *R'*, including the $-SO_2N(Alkyl)_2$ group, are different from those in the ring *R''*. The examples relate to pink and orange dyeings on cotton. (See *J. Textile Institute*, 1949, 40, A105.) C.

Burner-type Web-drying Apparatus. B. Offen. B.P.636,767: Appl. and filing 25/8/1947; Publ. 3/5/1950. The 16 claims cover an apparatus for drying webs of paper, textile fabrics, foil or letterpress that comprises a first drying stage in which movable burners direct flames towards the web, a second stage in which heated air is directed over the web, means (*e.g.*, a fan or blower) for circulating cold air in the first stage whenever the passage is interrupted, and mechanism for automatically moving the burners away from the web whenever travel is interrupted. Thus the web may be stopped almost instantaneously without risk of damage by radiant heat from the burners. There are five sheets of machine drawings. C.

Water-repellent Finish Dispersions: Application. Monsanto Chemical Co. B.P.636,878: Appl. and filing 4/6/1946; Publ. 10/5/1950; U.S.A. appl. 24/8/1944. A process for rendering textiles water-repellent comprises wetting or impregnating the material with an aqueous dispersion consisting of (*a*) an *N*:*N'*-diacyldiaminomethane in which the acyl groups have 12-28 C atoms (*e.g.*, stearoyl, oleyoyl, or montanoyl), (*b*) dimethylol urea or tetramethylolmelamine, or their C_1 to C_6 ethers, and (*c*) a dispersing agent, and thereafter drying and heating the material. The dispersion may contain ammonium oleate, triethanolamine oleate, or 2-amino-2-methyl-1-propanol oleate or stearate. Recipes are included in eight examples of the process. C.

Cyano-aminoanthraquinone Dyes for Cellulose Esters and Ethers. British Celanese Ltd. (for Celanese Corporation of America). B.P.636,914: Appl. 31/7/1946; Filing 30/7/1948; Publ. 10/5/1950. The claim is for a series of dyes of the general formula



in which one X is H and the other a halogen, NH_2, or NH*R*, and *R* is H or alkyl. They are obtained by the action of a cyanide on corresponding sulphonic acids, *e.g.*, 5- or 8-chloro-1:4-diaminoanthraquinone-2-sulphonic acid. Long lists are given of members of the group and the eight examples refer to blue and greenish-blue dyeings on cellulose acetate characterised by high resistance to light, washing, perspiration, and burnt gas fumes. C.

Insecticidal Compositions. Merck & Co. Inc. B.P.643,450 of 20/9/1950. Insecticidal dusts and sprays consist of the finely-ground parts of plants of the genus *Ryania* mixed with solid or liquid diluents. These ground materials are particularly effective in combatting the European corn borer in sweet corn. Using the larvæ of the webbing clothes moth as test insects, the light stability of these ground materials is much greater than that of *Ryania* extracts and concentrates. W.

Bactericidal and Fungicidal Composition. Buckman Laboratories, Inc. B.P. 645,409 of 1/11/1950. Commercial materials are proofed against micro-organisms by treatment with a mixture of an aromatic organic mercury compound of the type RHgX and one or more compounds selected from the class consisting of the isomeric trichlorophenols and their salts. Two examples relate to the treatment of wool felts. W.

Dye Stripping: Treatment of Keratinous Materials. M. Harris, C. W. Harris, L. E. Fourt, and A. M. Sookne (to Harris Research Laboratories). B.P.646,809 of 29/11/1950. The process consists in treating keratinous materials with a reducing agent, *e.g.*, formaldehyde sulphoxylates, hydrosulphites, in the presence of formaldehyde or an alkylene dihalide. By this means relatively unstable bonds are replaced by new chemical linkages and the resistance to the action of oxidising, reducing, and alkaline agents is thereby enhanced without impairing the mechanical and physical properties of the material. The treatment may be used for stripping dye from wool. If an alkylene dihalide is used, the *pH* of the

solution should be maintained at 7 or above. The process is effective over a wide range of conditions such as temperature, concentration of reagents, time of treatment. Good results are obtained by treatment for ½–1 hr. at 80° C. or ¼–1 hr. at the boil. W.

Wool Pile Fabrics: Treatment. J. Caspé (to Amer. Cyanamid Co.). U.S.P. 2,501,435 of 21/3/1950. Wool or hair pile fabric is straightened and opened to simulate the appearance and feel of fur. The pile is brushed to about half its depth with an acidified formaldehyde solution, trichloroacetic acid being the preferred acidifying agent; the moistened pile is ironed, the iron being heated to at least 350° F.; the moistening and ironing treatments may be repeated as desired. The pile is then sheared, dyed, and dried, and finally treated with an aqueous solution of a thermosetting aminoplast resin followed by ironing to cure the resin to a water-insoluble condition. The resin treatment imparts lustre and water-repellency to the fibres. W.

Keratinous Material: Modifications. M. Harris and A. E. Brown (to Harris Research Laboratories). U.S.P.2,508,713 of 23/5/1950. The disulphide bonds are replaced by new chemical linkages which resist the action of oxidising, reducing and alkaline agents. In examples, wool is immersed for 15–60 minutes at 60°–100° C. and at *pH* 3–9 in a bath containing a keratin reducing agent which is inert to formaldehyde. Suitable reducing agents are various sulphoxylate formaldehyde compounds, the hydrosulphites, and formamidine sulphinic acid. W.

Dye Stripping: Treatment of Keratinous Materials. M. Harris and A. E. Brown (to Harris Research Laboratories). U.S.P.2,508,714 of 23/5/1950. See B.P.646,809 above, A60. W.

Proofing: Treatment of Textiles to Confer Resistance to Shrinkage and to Attack by Moths and other Insects and their Larvæ. R. H. Kienle and C. A. Amick (to Amer. Cyanamid Co.). U.S.P.2,514,132 of 4/7/1950. Materials of or containing wool are impregnated with an aqueous solution of a methylated methylol melamine containing melamine fluosilicates and melamine fluoborates. The impregnated textile is then dried and cured. The impregnant is resistant to laundering. W.

Proofing: Treatment of Textiles to Confer Resistance to Shrinkage and to Attack by Moths and Carpet Beetle Larvæ. C. A. Amick (to Amer. Cyanamid Co.). U.S.P.2,515,107 of 11/7/1950. Materials of or containing wool are impregnated with an aqueous solution of methylated methylol melamine containing small amounts of diammonium hydrogen phosphate and hexamethylene tetramine; the solution also contains an acetone solution of a 1:1-bis(chlorinated phenyl)-2:2-dichloroethylene. The impregnated textile is then squeezed, dried, and heated to approximately 285° F. to convert the methylated methylol melamine into a water-insoluble condition. The impregnant is resistant to laundering. W.

Sulphonated DDT. E. Segessemann and N. M. Molnar. U.S.P.2,515,803 of 18/7/1950. An auxochrome group is introduced into the molecule of DDT by treating DDT with sulphuric acid, chlorosulphonic acid, or other sulphonating agents. Fabrics impregnated with this sulphonated 1:1:1-trichloro-2:2-bis-(*p*-chlorophenyl)ethane are protected from damage by moths, beetles, and other insects and their larvæ. The insecticidal effect is fast to repeated washing and dry-cleaning. The compound fixes itself directly to the protein of animal fibres. With vegetable fibres, permanent impregnation is effected with the help of mordants commonly used in dyeing. W.

Proofing: Apparatus for Treating Textiles. A. C. Smith (to The Pennsylvania Salt Manufacturing Co.). U.S.P.2,516,349 of 25/7/1950. The apparatus is a compact unit readily attached to or detached from conventional laundering or dry-cleaning equipment. The unit consists of means for storing and conveying impregnating liquid to the textile material in the centrifugal basket of the extractor, and for returning the liquid to the storage vessel. The liquid is intended to contain moth-proofing or mildew-proofing agents. W.

Dyebath Containing Moth-proofing Substances. J. Costa. French P.961,232 of 8/5/1950. The dyebath contains a solution or emulsion of DDT, which is made insoluble, and therefore resistant to laundering and dry-cleaning, by means of a

protective covering. The materials used for producing insoluble films on the fibre are casein, lac, and gelatin in the presence of potassium dichromate. W.

5—ANALYSIS, TESTING, GRADING AND DEFECTS

(A)—FIBRES

"Stick-Slip" Motion: Measurement of Kinetic Boundary Friction. J. R. Bristow. *J. & Proc. Instn mech. Engrs*, 1949, **160**, 384-392. An apparatus developed for the study of "stick-slip" motion is described. With this apparatus, the variation of kinetic boundary friction with the addition of varying amounts of fatty acid in a mineral oil, has been studied. The effect of temperature, and the variation of kinetic boundary friction for some bearing metals sliding on various steels have also been investigated. Results are expressed in the form of curves of the coefficient of boundary friction plotted against velocity of sliding. The results allow the boundary lubricating quality, or "oiliness", of lubricants to be assessed in some measure, and lend support to the original ideas of Hardy on boundary friction and lubrication. **C—5A.**

Wool Fibres: Frictional Properties. K. R. Makinson and G. King. *J. Textile Institute*, 1950, **41**, T407-T410. A letter from Makinson in which the writer comments on King's experimental results (see *J. Textile Institute*, 1950, **41**, A427). Some comments on the nature of friction in general are also presented, and reference is made to King's discussion of the work of Makinson and Mercer. A second letter consists of King's replies to these comments. **W—5A.**

Wool: Cuticle. N. Gralén. *J. Soc. Dyers & Col.*, 1950, **66**, 465-470. A general review in which several properties of the wool fibre are discussed in relation to the cuticle. Several photomicrographs and over thirty references to the literature are included. **W—5A.**

Mammalian Hair: Cuticle. H. M. Appleyard and C. M. Greville. *Nature*, 1950, **166**, 1031. The preparation and examination of transverse and longitudinal sections of human hair, hog bristle, alpaca, and wool are described. Results as seen under the microscope using 3650 Å line and also with phase contrast indicate that the thickness of the cuticle depends on the arrangement of the component scales. The cuticle of wool is thin compared with that of the other fibres examined, and the scales are arranged differently. **W—5A.**

Wool and Hair: The Existence of a so-called "Subcutis" or "Intermediate Membrane" in. ("Zur Existenz einer sogenannten Subcutis oder Zwischenmembran in Wolle und Haar.") (1) E. H. Mercer. *Melliand Textilber.*, 1950, **31**, 694-695; (2) H. Zahn, *ibid.*, 695; (3) E. H. Mercer, *ibid.*, 695. (1) The thin tubes called "subcutis" were isolated from wool fibres by the method due to Lehmann, Elöd and Zahn; after treatment with phenol and extraction with petroleum ether and before digestion with trypsin, the fibres were coated on one side with gold film. The persistence of the film suggests that the tubes originated from the outer part of the cuticle and are not subcuticular in origin. (2) Comment by Zahn. (3) Reply by Mercer. **W—5A.**

Wool: The Action of Alkali on the Epicuticle. G. Lagermalm and B. Philip. *Text. Res. J.*, 1950, **20**, 668-670. A short-time treatment for isolating epicuticle from wool with sodium sulphide is described. Electron micrographs show the penetration and disintegration caused by dilute sodium sulphide or potassium hydroxide. These phenomena are discussed with special reference to their connection with the increased dyeing velocity after treatment with alcoholic potassium hydroxide. **W—5A.**

Hair: Mechanical Properties and Structure. C. E. Reese and H. Eyring. *Text. Res. J.*, 1950, **20**, 743-753. A simple quantitative method for determining the amount of mechanical strength contributed by the various types of bonds in human hair has been developed. The effects of various types of reagents, such as acids, bases, oxidising agents, and reducing agents, are discussed. The reaction between various chemical agents and hair fibres has been found to be first-order with respect to the reagent and also with respect to the bonds to be broken. The effect of temperature is discussed. Using the theory of absolute reaction rate, the heats and entropies of activation for the reaction have been calculated. The rate of diffusion into hair has been considered. Using Fick's second law of diffusion, the diffusion coefficient of hydroxyl ion in hair has been

calculated. Also applying the theory of absolute reaction rates, the values for the heat and entropy of activation have been calculated. W—**5A.**

Flax: Strength of Fibre. *Linen Trade Circ.*, 1950, **36**, October, 14, 1. The article refers to *Linens and Domestics*, September, 1950, which reports a controversy between the Irish Linen Guild and the Johns-Manville Research Center, on the strength of linen. The Guild referred the matter to Dr. Turner, Director of Research at the Linen Industry Research Institute, who gave the highest and lowest values for flax obtained at the Research Institute, and pointed out that the Johns-Manville Research Center based their argument on highest and lowest figures taken from compilations, in which the lowest figure for flax could refer only to flax which was complete rubbish. L—**5A.**

(B)—YARNS

Rayon Yarns: Control of Mechanical Properties; Automatic Statotensiometer. ("Controle des Propriétés mecaniques des Fils de Rayonne.") J. Henno and R. Jouhet. *Bull. Inst. Text. France*, 1950, No. 19, 27-32. A new apparatus for the continuous determination of the mechanical characteristics of rayon yarn, is described. The automatic statotensiometer registers and records graphically the variations in elongation of yarn subjected to a constant load. It shows up weak points and enables accidental stretching to be deleted. C—**5B.**

Cordage Testing Methods. D. Himmelfarb. *Fibres, Fabrics & Cordage*, 1950, **17**, No. 9, 295-299. The article describes the object and nature of tests on ropes, the preparation of samples, testing machines, and specific tests for rope circumference, rope weight/foot, rope elongation, and impact strength. L—**5B.**

Cordage Testing Methods. Part II. Durability Testing. D. Himmelfarb. *Fibres, Fabrics & Cordage*, 1950, **17**, 330-332, 334. A description is given of:—National Bureau of Standards endurance testing machine; U.S. Navy durability testing machines; Devonport Dockyard oscillometer; the Riehle rope fatigue testing machine. L—**5B.**

Jute and Linen Weaving. Chap. I. Counts of yarn. T. Woodhouse and T. Milne. Re-written by W. Haggan. *Fibres, Fabrics & Cordage*, 1950, **17**, No. 9, 284-287. This is the first instalment of "Jute and linen weaving", re-written by W. Haggan. The basis of counts of yarns of different fibres is outlined. L—**5B.**

(C)—STEAM RAISING AND POWER SUPPLY

Du Pont Universal Glossmeter. S. Hochberg and M. P. Morse. *Offic. Digest Fed. Paint Varn. Prod. Clubs*, 1950, No. 306, 516-522. An illustrated description is given of the construction, operation, and calibration of the du Pont Universal glossmeter. C—**5C.**

Fadeometer Test: Temperature at Surface of Fabric. ("Essais de Détermination de la Température Réelle à la Surface d'un Tissu Exposé dans un Fadéomètre.") A. Cassal. *Bull. Inst. Text. France*, 1950, No. 19, 51-56. In some cases the fadeometer provides a more severe test of fastness than that of sunlight, one reason for this being the very high temperature which prevails on the surface of the exposed fabric. This temperature has been measured by observing which of a series of organic substances, of graduated melting points, melted when exposed alongside the fabric. The observed temperature is between 90° and 95° C. It is recommended that the voltage of the fadeometer be maintained at 210 volts, and that the air current of the cooling device be better directed towards the surface of the exposed fabric. C—**5C.**

Heat Retaining Power of Fabrics. ("Rétention Calorifique des Tissus.") C. Pinte. *Bull. Inst. Text. France*, 1950, No. 19, 21-26. A method for the determination of the heat-retaining power of a fabric is described. The material to be tested is stretched over a cylinder the inside of which is arranged as a thermostat kept at a temperature of 37° C. The current required to maintain this constant temperature over a fixed period (about one hour) is measured. The determination is repeated using a piece of chamois leather as covering (the time being the same) and the current required is again measured. From the two readings a value of the "heat retaining power" of the material under test is obtained. The experiment is carried out in an atmosphere of controlled temperature and humidity. A relation has been established (which can be shown graphically) between the thermal insulation capacity of a fabric and its elemental

characteristics (*e.g.*, thickness and density). Such relations are extremely general and their application permits the determination of the heat-retaining capacity of a fabric without making any calorimetric measurement. C—5C.

(D)—OTHER MATERIALS

Interferometer for Testing Measuring Gauges. Coventry Gauge and Tool Co. *Engineering*, 1950, 170, 243-244. An illustrated description is given of the "Matrix" interferometer for testing the planeness of metal surfaces such as measuring gauges. The principle of the method is explained. C—5D.

Wool Grease and Suint. I. The Refractive Index of Wool Grease. S. D. Rossouw. *Onderstepoort J.*, 1950, 24, 355-359. The refractive index of 23 samples of grease from greasy merino wool from different parts of the Union of South Africa has been determined at intervals of one degree from 25° C. to 50° C. It is recommended that 50° C. should be adopted as the temperature at which the refractive index of wool grease should be determined. Compared with other fats and oils, the refractive index of wool grease varies considerably, the average value obtained being 1·4752 at 50° C. From the shape of the curves the refractive index at temperatures outside the melting range can be calculated with a fair degree of accuracy. W—5D.

PATENTS

Yarn Extensometer. British Celanese Ltd. B.P.636,567: Appl. and filing 8/1/1948; Publ. 3/5/1950; U.S.A. appl. 10/1/1947. The claim is for a device for recording the linear response of filaments and yarns when subjected while under tension to physical or chemical treatment. It comprises means for holding the ends, means for urging the grips apart with a constant force so as to maintain the tension, and recording means (*e.g.*, a pen and chart) responsive to the relative motion of the grips for recording against time the changes in length of the specimen. C.

Wool Fibre: Fineness Determination by Sedimentation. G. C. Le Compte. U.S.P.2,499,395 of 7/3/1950. The fibres are cut into uniform lengths (not exceeding 200 microns), suspended in a solvent, and allowed to settle. Four deposits of fibres are removed at spaced points and weighed, thus determining the proportion of the four grades of fineness in the sample. The cutter and the sedimentation apparatus are described. The method can deal with 100,000-200,000 fibres at one time, and is claimed to be rapid and objective. (See also *J. Textile Institute*, 1948, 39, A425.) W.

7—LAUNDERING AND DRY-CLEANING

Washing Machine. ("Mechanising Washroom Handling.") J. Riley. *Power Laundry*, 1950, 83, 461-463. Description of the French De Souza washing machine introduced by Kent Laundry Engineers Ltd. The unusual feature of this machine is that unloading is carried out automatically in a matter of seconds. La—7.

Shirt Finishing. ("Single Operator Shirt Unit Arrives.") J. Riley. *Power Laundry*, 1950, 83, 487. Description of the single operator "Jaxon" shirt unit, which consists of one "Jaxon" press, a pair of sleevers, a steam-heated neck-form, a folding table and a gas-iron for topping up. Feature of the press is the curved end of the buck, which is sprung to the shape of the yoke of the shirt. The head is also curved and steam-heated so that the yoke is pressed while the main part of press finishes the body, and a neckband clamp is unnecessary. La—7.

Laundry Dry-cleaning and Allied Trades Exhibition, 1950. See Section 12. La—7.

8—BUILDING AND ENGINEERING

(A)—CONSTRUCTION AND MAINTENANCE OF BUILDINGS AND PLANT

Non-metallic Bearings: Use of Nylon. A. Bednar, J. W. Stanley, and R. B. Akin. *Mech. Engng*, 1950, 72, 20-21. Nylon and soft rubber are successfully used as materials for water lubricated bearings (*e.g.*, in pumps and dredger bearings). Some details are given of the construction and characteristics of these two types of bearings. C—8A.

Self-balancing Instruments for Process Industries. J. E. M. Coombes and F. B. Hinderwell. *Engineering*, 1950, 170, 297-300. The development of recording instruments for industrial processes is briefly outlined and the construction and mode of operation of self-balancing instruments are discussed in some detail. In

instruments of this type, which consist essentially of a d.c. potentiometer or an a.c. bridge circuit, the balancing of the bridge is done automatically. Diagrams and photographs are shown. C—8A.

(C)—Steam Raising and Power Supply

Textile Mill Engineering Services. ("New and old methods in some Preston mills.") *Power & Whs Eng.*, 1950, 385-389. A description of the engineering services at the mills of Horrockses, Crewdson & Co. Ltd., showing how modernisation has affected the type of plant installed. La—8C.

(E)—Transport

Textile Industry: Mechanical Handling. ("Chutes and hoists in modern textile mills.") *Hosiery Trade J.*, 1951, 58, (685), 40, 42. Discusses the construction and improvement of chutes and hoists for use in textile mills. H—8E.

(F)—Lighting

Lighting in the Textile Industry. ("Lighting of Fibre and Fabrics.") H. Hewitt. *Trans. Illum. Engng Soc.*, 1950, 15, 240-256. The paper reviews the applications of artificial lighting at all stages in the manufacture of clothing, from the raw fibre to the fabric, and from the fabric to the finished garment. Industrial lighting requirements are briefly assessed; observations are made on interesting developments in this field and upon possible future trends. More detailed reference is made to the applications of light sources for quality control, particularly in regard to colour matching and light fastness testing. (Discussion: *ibid.*, 256-262.) (For summary of paper see *J. Textile Institute*, 1951, 42, A31.) C—8F.

(I)—Waste Disposal

Sewage Containing Textile Trade Effluents: Treatment. W. H. Hillier. *J. Bradford Text. Soc.*, 1949-50, 96-98; 101. A general description of the Bradford Corporation Sewage Works at Esholt. W—8I.

Recovery of Grease from Wool Scouring Waste and Abatement of Stream Pollution through the Calcium Hypochlorite Process. A. A. Cameron. *Amer. Dyest. Rep.*, 1950, 39, No. 20, 667-668. Some of the problems encountered in this method of recovery are described. The chemicals are expensive, yet under favourable conditions the process can be economical. W—8I.

Cotton Finishing Waste Liquors: Treatment. G. G. Bogren. *Ind. Engng Chem.*, 1950, 42, 619-621. A description of pilot plant experiments to abate pollution of a stream receiving wastes from a large cotton finishing plant, which has a dual sewerage system. Light waste is discharged direct to stream, heavier waste is pumped to a treatment plant. Complete secondary treatment is necessary in the planned pollution abatement programme. The wastes vary in alkalinity from hour to hour. For this reason high-rate trickling filters seem the most promising method of treatment. Experiments showed that B.O.D. removal of at least 60 per cent. was possible at a rate of filtration of 10,000,000 gallons per acre per day. La—8I.

Cotton Printing and Finishing Waste Liquors: Treatment. S. E. Coburn. *Ind. Engng Chem.*, 1950, 42, 621-625. Operation of a pilot plant to find the most feasible way of treating cotton printing and finishing wastes before discharge into the Delaware Rivers showed that although construction costs of a high-rate trickling filter plant would be higher than for a chemical treatment plant, net annual charges would be less. The former plant presents fewer complications in operation and a less serious sludge-disposal problem. Results are given of analyses of wastes and treated effluents under varying conditions of operation. La—8I.

Patent

Recovery of Sterols from Wool Fat. H. H. Young and E. F. Christopher (to Swift & Co.). U.S.P.2,528,482 of 31/10/1950. Crude wool fat from wool scouring waters is decolorized by treatment in a fractionating tower with a liquefied normally gaseous hydrocarbon solvent, preferably propane, at 160°–170° F. and at 550-600 lb. pressure per square inch; a fraction rich in sterols and sterol esters is then separated from the decolorized product by further solvent treatment at 190°–200° F. and at 600–700 lb. pressure per square inch. W—8.

9—SCIENCE

Cotton: Resistance to Stem Weevil. K. Dharmarajulu, G. S. Ayyangar, V. R. Mudaliar, and R. B. Ahmanyan. *Indian J. agric. Sci.*, 1948, **18**, 151-164. The resistance of various cottons to the stem weevil (*Pempherulus affinis*) has been investigated. The resistant varieties of cotton were able to engulf and disintegrate the burrowing larvæ of the stem weevil in the gummy exudate released at the affected regions. Two South American varieties, *Verdao* and *Peruvian* (of the *Gossypium barbadense* group) and *Moco* (from the *G. purpurescens* group) were highly resistant. Other irrigated cottons were susceptible in varying degrees and succumbed to the attacks, although *Bourbon* (*G. purpurescens*) and *Nadam* (*G. arboreum* var. *typicum*) were tolerant and able to withstand the damage by quick repair. C—9.

Sprouting of Seeds in the Cotton Boll: Delayed Germination of Cotton Seed. T. Shibuya. *J. Soc. Trop. Agric. Formosa*, 1943, **15**, 187-200 (through *Plant Breeding Abstr.*, 1950, **20**, 114). Germination of seeds in cotton flowers on plants left standing and unpicked in an experimental plot is recorded. Species apparently vary considerably in regard to the incidence of this phenomenon, whose cause is being sought. C—9.

Boll-shedding in Cotton: Abnormal Flowers as Cause. T. Shibuya. *J. Soc. Trop. Agric. Formosa*, 1943, **15**, 185-186 (through *Plant Breeding Abstr.*, 1950, **20**, 114). Malformation of the flowers involving almost complete investment of the style by the staminal column is mentioned as a cause of shedding of unpollinated cotton flowers and hence as a cause of low yield. C—9.

Giant Jute Plant Grown by X-Ray Treatment. Anon. *Crops and Soils*, 1949, **2**, 25 (through *Plant Breeding Abstr.*, 1950, **20**, 109). A note is given on the economically valuable mutants of jute and cotton produced by X-ray treatment at the Bose Research Institute, Calcutta. C—9.

Functions of Malt α-Amylase. R. H. Hopkins. *J. Inst. Brew.*, 1950, **56**, 202-207. The hypothesis that malt amylase contains no α-amylase but consists of the saccharifying or β-amylase associated with a non-saccharifying liquefying enzyme is untenable. Whilst there may be present a phosphatase or other non-saccharifying enzyme which contributes to starch liquefaction, an α-amylase is present in addition to the β-amylase which was present in the ungerminated barley. Whenever liquefaction of potato starch was promoted by α-amylase, reducing power was developed and no preparation of the amylase was obtained from malt which failed to exhibit this property, but no inorganic phosphate was liberated. Inactivation of any traces of β-amylase present by oxidation with very dilute iodine failed to deprive the α-enzyme of its characteristic activity on starch (and dextrins). The saccharifying activity of malt α-amylase is not to be attributed to traces of the β-enzyme, for the detection of which a sensitive method has been devised. C—9.

Humin Formation During Wheat Gluten Hydrolysis. C. V. Lusena. *Canad. J. Res.*, 1950, **28**, F, 234-237. The effect of different amounts of starch and crude fat on humin formation during the hydrolysis of gluten prepared from a commercial flour depended on the acid/protein ratio, high ratios giving less humin-nitrogen and less humin weight. The nitrogen content of the humin was almost independent of the acid/protein ratio, but increased with decreasing humin formation. C—9.

Determination of Sodium Sulphide, Sodium Hydroxide, and Sodium Hydrosulphite in Booster Baths. E. I. du Pont de Nemours. *Du Pont tech. Bull.*, 1950, **6**, 30-32. A rapid method of analysis of booster baths containing sodium hydrosulphite, sodium hydroxide, and sodium sulphide is described. This type of bath is frequently used in dyeing with some thioindigoid types of dyes. Simple titration procedures are employed, using respectively indigo disulphonate solution, hydrochloric acid, and zinc sulphate solution. C—9.

Determination of Monomeric Formaldehyde and Total Formaldehyde by Bisulphite Method. A. Iliceto. *Ann. Chim. appl., Roma*, 1949, **39**, 703-716 (through *Brit. Abstr.*, 1950, C, 281). In an aqueous solution containing monomeric formaldehyde and polyoxymethylenes, the mixed compounds are best determined by treatment with 0·2N-sodium bisulphite (about twice the theoretical quantity) neutralised to *pH* 7 and, after keeping for 40 minutes at

20° C., back-titrating with 0·1N-iodine (with blank correction). Monomeric formaldehyde is determined in the presence of polyoxymethylenes at 0° C. by dilution with water adjusted to *p*H 4-5, addition of sodium bisulphate, and back-titration with iodine after various intervals, the results being extrapolated to zero time. C—9.

Sucrose: Colorimetric Determination. Z. Valtr. *Chem. Listy*, 1946, 40, 42-48 (through *Brit. Abstr.*, 1950, C, 277). The cuprous oxide obtained by a copper reduction method from the inverted sucrose is dissolved in 3N-sulphuric acid with a few drops of hydrogen peroxide at the boiling point. Aqueous ammonia is added to the filtrate, and the copper concentration in this solution is determined photocolorimetrically. C—9.

Spectrochemical Analysis: Measurement of Line Intensities. N. W. H. Addink. *Spectrochim. Acta*, 1950, 4, 36-42. A method of measuring line intensities in spectrochemical analysis is developed, based on the principle of visual comparison with standard density lines (standard paper density scale). The method gives results as accurate as are those obtained by means of the densitometer (5 per cent.), whilst the qualitative inspection of the spectrum and the measurement of line intensities can be made simultaneously. The use of a densitometer is eliminated. Examples of analysis results and of the time necessary for quantitative analysis according to this method are given. C—9.

Straw Pulps: Comparison of Chemical Methods of Preparation. ("Recherches sur la pâte de paille.") R. Renaud. *Chemie et Ind.*, 1950, 63, 252-257, 625-632. Six industrial methods for the preparation of straw pulp (both raw and bleached) by chemical means are briefly described. Some of these methods have been examined in the laboratory and the experimental techniques employed are described. The following methods are dealt with: treatment with caustic soda under pressure, treatment with caustic soda in several stages at atmospheric pressure, a "sulphate" treatment using a mixture of caustic soda and sodium sulphide, treatment with caustic soda and sodium sulphite, treatment with caustic soda and gaseous chlorine, and treatment with chlorine water. C—9.

Mechanically Modified Cellulose: Density and Crystallinity. ("Dichte und Ordnungszustand von mechanisch modifizierter Zellulose.") E. Stearer and F. Katheder. *Koll. Zschr.*, 1949, 114, 78-88. It has been found that loss in density of a cellulose, *e.g.*, cotton or viscose rayon, when subjected to treatment in a vibratory mill, is restored to a large extent by recrystallisation with water (a non-solvent) or by heating. It appears that although milling produces an amorphous state, as judged by X-ray analysis, the molecule merely undergoes deformation and not mechanical destruction since restoration of density and crystallinity is readily achieved. C—9.

Nitrocellulose from Jute Fibre: Structure and Properties. N. N. Saha. *Indian J. Phys.*, 1948, 22, 243,-247 (through *Brit. Chem. Abstr.*, 1950, AI, 116). Nitrated cotton and jute fibres, both raw and delignified with chlorine dioxide, have been studied. Nitrated raw jute was as inflammable as nitrocotton, but nitrated delignified jute was less so and had lost its fibrous character. Nevertheless the X-ray patterns of the two jutes were alike. Hence lignin does not enter into micelles of cellulose nitrate giving the patterns. It is concluded that nitration is a homogeneous type of reaction, although at the beginning the reaction is of micellar surface type as in acetylation of cellulose, and is more rapid. C—9.

Polymerisation of Vinyl Acetate: Inhibiting Effect of Small Amount of Acrylonitrile. W. R. Conn and H. T. Neher. *J. Polymer Sci.*, 1950, 5, 355-367. Small amounts of acrylonitrile inhibit the emulsion polymerisation of vinyl acetate. Larger amounts merely retard the reaction and the retarding effect is inversely proportional to the amount of nitrile present. In solution polymerisation, the retarding effect of small amounts of acrylonitrile is directly proportional to the amount present. With mixtures of the two monomers in emulsion, the polymerisation of both the acrylonitrile and the vinyl acetate becomes faster with increasing nitrile content; in solution, the polymerisation of both monomers becomes slower with increasing nitrile content. C—9.

Drying Oils: Developments. R. L. Terrill. *Offic. Digest Fed. Paint Varn. Prod. Clubs*, 1950, No. 306, 527-531. The basic principles employed in the upgrading and treating of drying oils are briefly reviewed. C—9.

Flow Behaviour of Highly Viscous Fluids: Simple Method of Investigation. H. Willenberg and W. Fritz. *Angew. Chem.*, 1948, May–June, 16 pp. (through *Sci. Abstr.*, 1950, 53, A, 546). A capillary viscometer for viscosity measurements under varying shearing stresses within the viscosity range of 10^1 to 10^6 poise is described. The substance to be investigated is contained in two cylindrical chambers which are interconnected by a capillary tube. The experimental sample is forced back and forward through the capillary by means of pistons fitting in the cylinders. By this means a sample can be repeatedly stressed and measured. The instrument is suitable for use at temperatures from −80° C. to well over +100° C. The range of measurement can be further extended to accommodate higher values (10^4 to 10^{10} poise) by changing the dimensions. C—**9.**

Solubility of High-Polymer Fibre Molecules. ("Die Löslichkeit hochpolymerer Fadenmoleküle.") A. Münster. *J. Polymer Sci.*, 1950, 5, 333-353. The theory of solubility of high-polymer fibre molecules is developed on the basis of the thermodynamic and of the static theory of polydisperse solutions. For the separation of a binary solution, the critical concentration is located at very low concentrations of the fibre molecules and the critical temperature increases only slightly with the degree of polymerisation. The separation curve is calculated and a formula for the degree of swelling in dependence of the temperature is given. The theory explains the general solubility properties of high-polymer substances and especially shows that non-solvents always have a swelling action. The separation of ternary systems is first treated under the assumption that the sol phase does not contain fibre molecules. The properties of reverse-order precipitation (in which low molecular constituents precipitate first) are developed from this theory in agreement with experimental results. A new case of reverse-order precipitation in the system cellulose triacetate–tetrachloroethane–petroleum ether is reported. C—**9.**

Polyvinyl Acetate: Polymerisation Degree and Flow Properties. ("Ueber den Zusammenhang zwischen Durchschnittspolymerisationsgrad und Fliessvermögen bei Polyvinylazetaten.") W. Scheele, N. Ellerbrock, and I. Friedrich. *Koll. Zschr.*, 1949, 114, 73-77. From earlier work carried out on the viscosity of organic "glasses", it appears that there is a quantitative relationship between intrinsic viscosity or degree of polymerisation and the temperature coefficient of deformation. Should further confirmation become available, it will be possible to adopt it as a rheological law governing solvent-free chain-moles. C—**9.**

Polymer Molecules: Distribution in Dilute Solution. P. M. Doty and R. F. Steiner. *J. Polymer Sci.*, 1950, 5, 383-386. Considerations that enter into the average arrangement of polymer molecules in dilute solution are postulated. An important factor is the effective diameter, *D*, of the polymer molecules, defined by the spherical surfaces which come into contact when the characteristic value of segment density is reached. The value of *D* can be estimated by two methods, viz., (*a*) one depending on the interpretation of thermodynamic data, and (*b*) arising from a consideration of the scattering of light from a system of polymer molecules exhibiting an effective diameter. A relationship derived from (*b*) is illustrated by a curve for turbidity and dissymmetry for a toluene solution of a polystyrene fraction. C—**9.**

Determination of Macromolecular Weights by Osmometry. P. Platzek. *Chem. Weekbl.*, 1950, 46, 193-200 (through *Brit. Abstr.*, 1950, C, 311). Methods for determining high molecular weights are briefly reviewed. Details are given of the osmometric method, the reliability of which depends on the membranes being strictly semipermeable. Errors are caused by distortion of the membrane and leakage of the solute. The apparent paradox that osmometry is applicable to macromolecules, although smaller molecules give higher osmotic pressures for equal concentrations is explained by the difficulty in finding really semipermeable membranes for small molecules. C—**9.**

Theory of Electrophoresis-Convection. J. G. Kirkwood, J. R. Cann, and R. A. Brown. *Biochim. Biophys. Acta*, 1950, 5, 301-314. The theory of transport in the electrophoresis-channel is developed in the quasi-stationary approximation on the basis of the equations of hydrodynamics and the equations of forced diffusion of ion constituents under the influence of an applied electric field. Times of transport of proteins through the channel and separation factors for representative protein mixtures are estimated by means of the theory. C—**9.**

Electrokinetic Properties of Cellulose Fibres. (I). D. A. I. Goring and S. G. Mason. *Canad. J. Res.*, 1950, 28, **B**, 307-322. Stream potential, electro-osmotic, and permeability measurements were made on cotton pads in the presence of distilled water. Several sources of irreproducibility have been eliminated from the usual experimental methods of measuring the ζ-potential. Uniform packing of the pad is important. A method of determining the "pore factor" is proposed, based on an assumed value for the pore orientation factor and an indirectly measured value of the swollen specific volume of the fibres. The electro-osmotic measurements required a large correction for capillary electro-osmosis, a source of error overlooked by other workers. The ratio of the ζ-potential calculated from electro-osmosis to that from the stream potential was greater than unity and increased with increase in pad concentration. C—9.

Electrokinetic Properties of Cellulose Fibres. (II). D. A. I. Goring and S. G. Mason. *Canad. J. Res.*, 1950, 28, **B**, 323-338. A new technique of measuring the ζ-potential of cellulose fibres, in which stream current potential measurements are carried out over a range of solid concentrations on a single pad, is described. Reversible electrodes are used since it is necessary to measure the d.c. resistance of the pad. Degrees of swelling calculated from the stream data are consistently higher than those calculated from permeability measurements. This discrepancy indicates a serious limitation of the conventional electrokinetic theory when applied to swollen cellulose. A model of the fibre–liquid interface, consisting of partially dissolved electrically charged cellulose chains accounting for the observed discrepancy is discussed. C—9.

Electrokinetic Properties of Cellulose Fibres. (III). D. A. I. Goring, G. J. Biefer, and S. G. Mason. *Canad. J. Res.*, 1950, 28, **B**, 339-344. A low frequency dispersion effect observed in the course of measuring the ζ-potential of cellulose fibres by the stream current and stream potential methods (see preceding abstract) is discussed. Sulphite cellulose, rayon cellulose, and silk fibres in the presence of 10^{-4} N-potassium chloride show a 20–25 per cent. decrease in electrical resistance between frequencies of 0 and 100 cycles per second. Marked capacitive resistance is also shown. The phenomenon is related to the swelling properties of the systems, but it cannot be concluded whether it is associated with the surface or the interior of the swollen fibres. C—9.

Density of Water Absorbed on Charcoal. H. L. McDermot and N. G. M. Tuck. *Canad. J. Res.*, 1950, 28, **B**, 292-297. The apparent volume of water absorbed by a zinc chloride activated charcoal has been measured over the entire range of relative pressures, employing an apparatus especially designed to eliminate carry-over of water vapour into the absorption cell. The apparent volume has been found to be consistently greater over the entire absorption isotherm than the normal volume of an equal weight of liquid water, and it tends to be slightly higher on desorption than on adsorption. C—9.

Differential Equations of Diffusion. J. D. Babbitt. *Canad. J. Res.*, 1950, 28, **A**, 449-474. The fundamental bases of the differential equation of diffusion are examined. From a dynamical equation defining the motion of the gas, and equation of continuity expressing the law of conservation of mass, and an equation of state giving the relation between concentration and pressure, the differential equations are derived for the interdiffusion of two gases, for the diffusion of vapours, and for the diffusion of gases and vapours through solids. It is shown that Fick's law is not generally valid as the fundamental equation of diffusion. C—9.

Direct Dyes: Diffusion into Cellulose; Theory and Practical Implications. J. Crank. *J. Soc. Dyers Col.*, 1950, 66, 366-374. Some recent theoretical papers concerned with the diffusion of direct dyes into cellulose are reviewed. Mathematical solutions of the diffusion equation applicable to dyeing with a restricted amount of dye, as in commercial practice, are presented in a form suitable for calculation. Several examples of calculated rate-of-dyeing curves, suitable for direct comparison with measured rates of dyeing from a commercial dyebath, are shown. Attempts to provide a quantitative theoretical explanation of the experimental facts about rate of dyeing are discussed. The picture of dye diffusion into cellulose, which seems to be emerging as a result of recent work, is described. C—9.

Diffusion Constants and Molecular Weight. A. Polson and D. van der Reyden. *Biochim. Biophys. Acta*, 1950, **5**, 358-360. The diffusion constants (D) of electrically neutral organic compounds of compact structure can be represented by an empirical equation of the form

$$D = \frac{a}{M^{\frac{1}{3}}} + \frac{b}{M^{\frac{2}{3}}} + \frac{c}{M},$$

where a, b, and c are constants and M is the molecular weight. From this equation it is suggested that the diffusion constant is a function of the radius of the molecule, its area, and its volume. C—9.

Polyvalent Polymeric Ions: Behaviour in Solution. A. Katchalsky, O. Künzle, and W. Kuhn. *J. Polymer Sci.*, 1950, **5**, 283-300. The addition of alkali to a dilute solution of polymethacrylic acid produces a strong increase of the intrinsic viscosity. This phenomenon, as well as related effects in streaming birefringence, can be interpreted as a partial or complete uncoiling of the filament, produced by the electrostatic action in passing from the neutral molecule to the polyvalent ion. The subject is treated mathematically. A first and a second approximation are considered for the electrostatic energy of a filament as a function of the end-to-end distance h and the degree of ionization α. A distribution function with respect to h and thereby the partial uncurling of the filament is determined as a function of the degree of ionization α. By introducing the mean value of h into the formulæ which give the intrinsic viscosity as a function of h, expressions for the viscosity as a function of α are obtained. Agreement with experimental observations is satisfactory. C—9.

Solution Conductivity Measurement. R. Rosenthal. *Instruments*, 1950, **23**, 664-669. The principles of the measurement of the conductivity of electrolytic solutions are briefly explained. Types of cells for industrial use are discussed and several are illustrated. After considering the properties of some conducting solutions, various industrial applications of conductivity measure are dealt with. These include application to boiler operation, plant wastes, concentration control, and completeness of washing and rinsing. C—9.

Ionic Exchange: Equilibria in Irregular Systems. L. E. Davis. *J. Colloid Sci.*, 1950, **5**, 107-113. Regular and irregular ion-exchange systems are defined with respect to a statistically treated model. Two types of irregular models are described. Whenever the internal partition function for any ionic species is markedly affected by strong bond forces, "irregular" behaviour may be expected for any exchange involving this species. A mixture of two "regular" systems, with different invariant values of the equilibrium exchange constant k, will display a variable value of k for the mixed system. C—9.

Arachin as a Dissociation System. ("The Globulins of the Ground Nut." I.) P. Johnson and E. M. Shooter. *Biochim. Biophys. Acta*, 1950, **5**, 361-375. It has been confirmed that the globulin protein of the ground nut (*Arachis hypogæa*) forms a reversibly dissociating system in solution of the type, $A_2 \rightleftharpoons 2A$, the globulin occurring chiefly in the nut in the associated form. The equilibrium position and its rate of attainment in solution depends on *pH*, salt concentration, and type of salt present. From sedimentation and diffusion measurements it appears that the dissociation products are of greater molecular asymmetry than is the parent molecule. C—9.

Arachin: Electrophoretic Examination. ("The Globulins of the Ground Nut." II) P. Johnson, E. M. Shooter, and E. K. Rideal. *Biochim. Biophys. Acta*, 1950, **5**, 376-396. The general picture of the arachin dissociation (see preceding abstract) concerning both equilibrium position and reaction rates has been confirmed by electrophoretic measurements using phosphate and barbiturate buffers. Electrophoretic anomalies of the arachin system are discussed. C—9.

Dyed Regenerated Cellulose Fibres: Polarised Fluorescence. ("The Cellulose-Dye Complex. Part IV.") J. M. Preston and Y. F. Su. *J. Soc. Dyers Col.*, 1950, **66**, 357-361. Studies have been made of the relation between the degree of orientation of dyed regenerated cellulose fibres (cuprammonium and viscose rayon) and the degree of polarisation of their fluorescence under various conditions. With certain precautions, the fluorescence method gives a measure of the dichroism of the dyed fibres and is a simple and accurate method of evaluating dichroism. C—9.

Dyed Regenerated Cellulose Fibres: Comparison of Orientation Factors. ("The Cellulose-Dye Complex, Part V.") J. M. Preston and P. C. Tsien. *J. Soc. Dyers Col.*, 1950, **66**, 361-365. It is shown that an orientation factor can be derived from the dichroism of dyed fibres. Orientation factors of certain regenerated cellulose fibres (cuprammonium and viscose rayons) derived by different methods are compared. Values are given for the orientation factors of the same fibres derived from polarised fluorescence, dichroism, birefringence, X-rays, and swelling anisotropy. C—9.

Light Sources for Line Spectra. W. Elenbaas and J. Riemens. *Philips Tech. Rev.*, 1950, **11**, 299-302. A description is given of the construction and power supply apparatus of a number of light sources for line spectra, with a summary of the various fillings (rare gases and metallic vapours) and the spectra emitted. A table shows how certain rays can be isolated from the various spectra with the aid of filters, which are further described. Some lamps and spectra are shown. C—9.

Particle Radius Determination by Polarization Ratio of Scattered Light: Use of White Light. M. Kerker. *J. Colloid Sci.*, 1950, **5**, 165-167. The measurement of the polarisation ratio ρ, of the light scattered by a spherical particle, is generally difficult for dilute systems of small colloidal particles because of the low intensity of the scattered light. The difficulty can be decreased considerably if white light instead of monochromatic light is used. It is shown how the relation between ρ and the radius of the particle, for white light, may be obtained. Some results are given. C—9.

Self-Recording Ionization Spectrometer for Intensity Measurements. E. Laurila. *Ann. Acad. Sci. Fennicæ, Ser. A*1, 1941, No. 5, 11 pp. (through *Sci. Abstr.*, 1950, **53**, **A**, 576). An apparatus is described for the automatic recording of X-ray spectra, using a high pressure counting tube, (*e.g.*, 0·9 atmospheres of xenon), with a simple counting circuit. The source of radiation was a Müller-Metalix X-ray tube. Photographs and drawings of the apparatus are included, with a few representative spectra. C—9.

Micelles and X-Rays: Structure of Soaps and Detergents. W. Philippoff. *J. Colloid Sci.*, 1950, **5**, 169-191. A survey is given of the work that has been carried out on the X-ray diffraction study of the micelles of soaps and detergents. All results available in the literature are summarised and supplemented with new results obtained by the author. From these results the basic phenomena are summarised and the known quantitative mathematical relations indicated. Experimental aspects are first discussed, including conditions for an X-ray pattern, concentration dependence of the "I-Band", solubilisation investigations, and formation of liquid crystals. The author then considers (*a*) models for the micelle, (*b*) binary soap–water systems, (*c*) soap–oil–water systems, and (*d*) further phenomena, including temperature effect, independence of viscosity from the X-ray pattern, and the orientation of the X-ray patterns by flow. [53 references.] C—9.

Proportional Counter X-Ray Spectrometer. W. Bernstein, H. G. Brewer, and W. Rubinson. *Nucleonics*, 1950, **6**, Feb., 39-45 (through *Sci. Abstr.*, 1950, **53**, **A**, 576). The use of proportional counters with amplifier and single channel pulse analyser for measuring X-ray spectra in the range 1-50 keV is described. A typical counter employing 90 per cent. neon, argon or krypton + 10 per cent. methane filling at one atmosphere pressure is described and details of an amplifier for handling pulses with height ratios of 7000:1 is given. Some results and spectra are given. C—9.

X-Ray Diffraction Analysis: New Experimental Method. M. Brunin. *Publ. Ass. Ing. Fac. Polytech. Mons.*, 1947, **95**, No. 3, 17-24; No. 4, 9-16; *Met. Abstr.*, 1949, **16**, 488 (through *Brit. Abstr.*, 1950, C, 295). Modifications of the Debye–Scherrer technique to counteract variations of tube current, deterioration of intensity with running time, and erratic microphotometry are described. Film calibration is carried out rapidly to avoid changes in tube condition. A mechanical device slides the film in steps and permits the X-ray beam issuing from a simple collimator to fall on the film for a period which is increased by a constant increment at each step. By microphotometering the calibration strip, a curve relating photographic and X-ray intensities is obtained for one reference specimen. A camera of the Debye–Scherrer type is described in which two

specimens can be irradiated simultaneously so that each receives the same amount of energy despite variations in tube conditions. C—9.

300-kv. X-Ray Equipment. Newton Victor, Ltd. *Engineering*, 1950, 170, 245. Brief details (with illustrations) are given of a new 300 kv. X-ray apparatus of advanced design. C—9.

Geometric Treatment of Dimensions in Physics. P. Moon and D. E. Spencer. *Canad. J. Res.*, 1950, **28, A,** 268-280. A precise theory of "dimensional analysis" is formulated. An "idon" or complete physical quantity is an entity with two attributes: quality and quantity. Formal rules are given for the manipulation of idons, and it is shown that they can be pictured as vectors in a k-dimensional space. This geometrisation, although not necessary, often gives added grasp to the subject, just as vector analysis is never necessary in physics, although often convenient. There are six practical applications of the theory, all of which are handled in a precise and dependable way by the geometric method. C—9.

Surface Films and Particle Size Determination of Powders. V. R. Gray. *Canad. J. Res.*, 1950, **28, B,** 277-291. It has been found possible to spread almost any powder on a water surface in a layer one particle thick and to study its surface pressure–area relation by conventional film balance techniques. A special sprinkler was developed for placing the powder on the surface, and flotation agents were adsorbed on particles which do not normally float. Fine particles needed considerable deaeration and drying before they were sufficiently deflocculated. Although all films collapsed more or less readily on compression, it was possible to define a point in the compression curve which represented a rigid film. The thickness of this film was a definite fraction of the mean particle diameter, measured by microscopic methods, the fraction varying with ease of agglomeration and with the shape of the particles. This method can be used for measurement of mean particle size and it possesses certain advantages over existing methods for many purposes. Experiments on some particles, including corn- and potato-starch, are described and photomicrographs of the particle films are shown. C—9.

Ostwald Viscometer: Calibration for Determination of Degree of Polymerisation. ("Zur Eichung von Ostwald-Viskosimetern für die viskosimetrische Polymerisationsgradbestimmung.") G. Schmidt. *Koll. Zschr.*, 1949, 114, 106-108. It is suggested that for the viscometric determination of degree of polymerisation, a capillary viscometer of the Ostwald type is most suitable. The influence of possible errors, *e.g.*, those arising from structural viscosity and loss of kinetic energy during flow through the tube, is discussed and it is shown how they may be overcome. C—9.

Viscosity Studies of Branched Polystyrene Copolymer. O. J. Walker, jun., and C. A. Winkler. *Canad. J. Res.*, 1950, **28, B,** 298-306. The viscosities in dilute toluene solutions of fractions of polystyrene prepared at various temperatures and catalyst concentrations were found to conform to the relation $\eta_{sp}/C=[\eta]+k'[\eta]^2C$, where η_{sp} is the specific viscosity, $[\eta]$ the intrinsic viscosity, C the polymer concentration, and $k'=0{\cdot}38$. When styrene was copolymerised with quantities of divinylbenzene insufficient to cause gelation, the viscosity-concentration relation changed, resulting in values of k' from 0·50 to 0·84. It was concluded that the polystyrene molecule is normally linear. It has previously been predicted from theoretical considerations that k' should increase with degree of cross-linking or branching. C—9.

Dilute-Solution Viscosity of High Polymers. T. Alfrey, jun., A. I. Goldberg, and J. A. Price. *J. Colloid Sci.*, 1950, 5, 251-259. Specific viscosity data have been obtained for polymethyl methacrylate, polystyrene, and a methylmethacrylate-styrene copolymer, in a variety of solvents. The "solvent power" of a given solvent for the methyl methacrylate group in the polymer and copolymer depends not only on the cohesive energy density of the solvent but also on the electron-donating or electron-accepting properties of the solvent. With polymethyl methacrylate, a definite inverse correlation between intrinsic viscosity and k' value (slope of specific viscosity curve divided by square of intrinsic viscosity) has been observed. C—9.

Viscosity of Polyacrylic Acid Solutions: Effect of Salts. H. Markovitz and G. E. Kimball. *J. Colloid Sci.*, 1950, 5, 115-139. The viscosity of polyacrylic acid solutions has been studied as a function of the concentration of added

sodium chloride and the degree of neutralisation at a given concentration of polymer. It has also been measured as a function of the concentration of sodium chloride and the concentration of polymer at a given degree of neutralisation. The effect of salts other than sodium chloride depended on the charge and concentration of the cation rather than on ionic strength. A doubly charged cation is much more effective than is a univalent positive ion. The empirical expression, $\eta = \eta_\infty + \frac{a}{M+b}$ (where η is the viscosity of the solution, M the molarity of the salt added, and η_∞, a, b are constants) was found to be valid at least for low concentrations. Three theories to account for the observed behaviour of polyacrylic acid solutions are discussed and compared. [33 references.] C—9.

Flow of Plastic Materials. F. Charron. *C.R. Acad. Sci. Paris*, 1950, 230, 614-615 through *Sci. Abstr.*, 1950, 53, A, 613). A simple expression is derived from the Buckingham–Renier equation for the flow of a plastic material through a tube of circular section at stresses near to the yield stress. C—9.

Corn Starch Gels: Measurement of Properties. W. G. Bechtel. *J. Colloid Sci.*, 1950, 5, 260-270. The application of different gel testing methods and instruments to starch gels has been investigated, and the properties of gels of both modified and native corn starch have been determined. By means of an embedded-disc gelometer, the properties of starch gels can be determined with adequate precision to distinguish between consecutive commercial grades of acid-modified corn starches, and between gels of the same starch which differ by 0·5 per cent. in starch concentration. Gels of acid-modified as well as unmodified corn starch are elastic to the yield point. The percentage increase in rigidity and breaking strength of gels during ageing from 4 to 24 hours depends on the modification of the starch. The effect of temperature of cooking starches on the properties of their gels varies with the degree of modification of the starch. With increasing modification of the starch, the consistency of the hot pastes of acid-modified corn starches decreases to a greater extent than do the rigidity and breaking strength of their gels. C—9.

Fibre-Length Determination: Comparison of Weighted Mean, Pope's Mean, and Arithmetic Mean. K. G. Deo. *Indian J. agric. Sci.*, 1948, 18, 19-24. Significant differences are obtained in mean fibre-length values by use of weighted mean formula and Pope's formula: weighted mean is always higher than Pope's mean. It is theoretically shown that the arithmetic mean agrees with the weighted mean, if it is assumed that the unit fibre weight is the same for all the group-lengths; it agrees with the Pope's mean if the weight per unit length is the same in all groups. It is calculated that the fibre weight per inch varies less from group to group in a cotton than does the unit fibre weight, which shows a greater amount of variation. C—9.

Tables for Use in Comparisons Whose Accuracy Involves Two Variances, Separately Estimated. (A) A. A. Aspin. (B) B. L. Welch. *Biometrika*, 1950, 36, 290-296. (A) The tables given are designed for use when the precision of an estimate of a population parameter depends linearly on two population variances. The tables are briefly discussed and an example of their use is given. (B) An appendix in which some remarks are made on the accuracy of the tables and of certain approximations, which may be used for probability levels other than those tabled. C—9.

Probability Graphs and Tables for Application to Industrial Problems. A. Boyajian. *Gen. Elec. Rev.*, 1950, 53, No. 7, 41-43. Algebraic and graphical methods of determining probabilities are briefly discussed. The algebraic method deals with stepped (discontinuous) variables whilst the graphical (or normal-law) method deals with continuous variables. The normal-law is very much easier to use than is the algebraic method, and two equations are given which link the methods. A probability table is given which serves the same purpose as the probability graph, although more accurately. However, for industrial or routine use, the graph is more convenient as it directly gives a visual indication of probability. C—9.

Particle Counting: Correction for Overlapping of Particles. P. Armitage. *Biometrika*, 1949, 36, 257-266. In counts of dust particles on a sampling plate, the total number of particles present may be under-estimated on account of the overlapping of some of the particles. A method of correcting an observed count

is obtained which allows for the possibility of undetected overlaps. A statistical treatment is given with an indication of the application of the theory to practical cases. C—9.

Automatic Data-Analysing Machine. B. S. Benson. *Mech. Engng*, 1950, 72, 285-288. An illustrated description is given of a machine that automatically analyses data recorded in a bar-graph form. The machine consists essentially of a film projector and a screen associated with a photoelectric cell, counting circuits to determine the location of selected lines (on the bar-graph), and measuring networks to determine and record their lengths. The machine plots calibrated values of instrument measurements against time. C—9.

Anionic Detergents: Sorption by Wool. K. Swanston and R. C. Palmer. *J. Soc. Dyers & Col.*, 1950, **66**, 632-638. The rates of sorption of sodium cetyl sulphate by wool at 50° C. under varying conditions of salt concentration and *pH* have been measured. A quantitative explanation of the results is given using the approximation that the concentrations of ions have their stoichiometric relationship (as in equilibrium systems). W—9.

Anionic Detergents in Solution: Estimation by Hartley Titrations. K. Swanston and R. C. Palmer. *J. Soc. Dyers & Col.*, 1950, **66**, 630-632. A quick method for estimating anionic detergents consists of a modification of Hartley and Runnicles' method (*J. Textile Institute*, 1939, **30**, A207). No indicator is used and either cationic or anionic detergent can be used in the burette. The method is shown to be at least as accurate as other published methods and is quicker and more straightforward. W—9.

Chemical Attack on Polymeric Materials as Modified by Diffusion. S. M. Katz, E. T. Kubu, and J. H. Wakelin. *Text. Res. J.*, 1950, **20**, 754-760. The general equation for the kinetics of the successive processes of the relatively rapid diffusion of a reagent into a cylindrical fibre, followed by a bimolecular chemical reaction, has been developed and applied to the extent of the reaction and to the resulting decay of stress, based on the assumption of a linear relationship between stress and the extent of the reaction. Two methods of solution of the equation have been indicated and a comparison is made with the solution of a similar problem as carried out by Reese and Eyring. Finally, the method has been considered by which the parameters in this equation can be evaluated experimentally. W—9.

Wool Oils: A New Approach to the Evaluation for Resistance to Oxidation in Storage. *Amer. Dyest. Rep.*, 1950, **39**, No. 19, P633-P635. The Mackey test, which is suitable for saponifiable oils, and the Fade-Ometer test are discussed. The proposed, accelerated test method has been investigated for eleven wool oils, and it was found that there was excellent correlation between the proposed test at 120° F. for three weeks and natural ageing. W—9.

Fatty Acids. ("The Solvent Separation Process.") Price's (Bromborough) Ltd. *Wool Rec.*, 1950, **78**, 1840. The solvent process, which is used for the separation of solid and liquid fatty acids, depends on the differing solubilities of fatty acids in a suitably selected solvent. Some uses of stearine, stearates, and oleine (which are obtained by this process) are listed. W—9.

Australian Dried Woolskin: Soaking. M. Dempsey. *J. Soc. Leather Trades' Chemists*, 1950, **34**, 464-473. Pieces of dried merino sheepskin were soaked in one of four soak liquors, namely, water, water containing zinc chloride as a disinfectant, 10 per cent. solution of calcium chloride, and water containing sulphuric acid at *pH* 2, for 1, 2, 4, and 8 days. The efficiency of the soaking was judged from the micro-examination of the resulting fibre structure. The samples soaked in water soon showed bacterial damage. Such degradation was considerably inhibited by zinc chloride, but a considerable time in soak was then needed to open up the structure. Opening up by means of calcium chloride was accompanied by loss of substance. Opening up by means of acid led to a plump, compactly woven structure. The effect of formalin in fixing the fibre structure for micro-examination leads to some tentative suggestions regarding the possible effect of tanning the experimentally soaked pieces and indicates the desirability of large-scale experiments on the type of leather produced from goods soaked in calcium chloride solution and those soaked at *pH* 2. W—9.

Cellulose Acetate: Salt Effect. C. J. Malin, L. J. Tanghe, G. D. Smith. *Ind. Engng Chem.*, 1950, **42**, 730-734. Salt effect is a measure of the increase in viscosity of cellulose acetate caused by the presence of certain salts. A procedure

for its measurement is described. The influence of salts on viscosity depends on: nature of the salt, amount of salt, *pH* of solution from which the salt is applied, solvent for the cellulose acetate in solution, degree of hydrolysis and amounts of carboxyl and combined sulfate in the cellulose acetate. La—**9.**

Cellulose Fibres: Sorption of Sodium Silicates and Silica Sols. R. C. Merrill and R. W. Spencer. *Ind. Engng Chem.*, 1950, **42**, 744-747. Sorption of both alkali and silica from sodium metasilicate, Na_2 0.3.37 SiO_2, N-SoLA, and a sulphuric acid treated silica sol was measured at 25° C. for bleached sulphite, soda, kraft and ground wood cellulose pulps. Similar data on sodium hydroxide are given for comparison. Both alkali and silica are sorbed by the cellulose fibres, the former usually to much greater extent. The mechanisms of the sorption probably involve van der Waals forces, hydrogen bonding and chemical reactions with metal oxide impurities. Practical applications of the data are discussed. La—**9.**

10—ECONOMICS

Fibre and Yarn Prices in U.S., 1920–50. Anon. *Rayon Org.*, 1950, **21**, 104-105. A chart is given showing the fluctuations in prices over the period 1920 to June, 1950, of raw cotton, viscose rayon staple fibre, acetate rayon staple fibre, filament rayon yarn, cotton yarn, raw wool, worsted yarn, and raw silk. C—**10.**

Post-War Japanese Cotton Industry. T. Murayama. *Egypt. Cotton Gaz.*, 1950, **9**, 39-48. The post-war situation of the Japanese cotton industry is surveyed under the headings of supply of raw cotton, rate of operation and production, supply for domestic use, reopening of cotton textile exports, causes of stagnation of exports and measures to meet them, quantity and destination of cotton textile exports, labour situation, and pending problems in the cotton industry. Appropriate figures are presented to illustrate the points discussed. C—**10.**

Rayon Industry in United Provinces, India. R. M. Agarwal. *Indian Text. J.*, 1950, **60**, 715-717. The Government of the United Provinces of India has decided to set up two factories for the production of rayon yarn. Some general topics related to the production of rayon are briefly considered including processes, raw materials, technical personnel, cost, and location and size of plant. C—**10.**

Turkey's Cotton Production: A Survey. F. H. Whitaker. *Internat. Cotton Bull.*, 1950, **18**, 125-128. A brief survey is presented of the production of cotton in Turkey, including details of production and consumption, rainfall, varieties of cotton grown, pests, machinery, and agricultural policy. Export figures are given for the years 1939 to 1949, inclusive. C—**10.**

Egyptian Cotton: Statistical Position at 31st December, 1949. R. Dabbous. *Egypt Cotton Gaz.*, 1950, **9**, 77-89. Figures are presented showing the statistical position of the Egyptian cotton industry at 31st December, 1949, with forecasts for the 1949/50 season. Over-all figures are given by varieties for stocks, production, exports, home consumption, and earmarked cotton. The figures are then presented in detail for each variety. Export details are also treated more fully, the chief destinations being considered individually. Finally the 1950/51 cotton acreage is discussed. C—**10.**

Future of Ashmouni Cotton. (A) N. S. Pearse. (B) A. M. El K. Bey. *Egypt. Cotton Gaz.*, 1950, **9**, 57-60; 61. (A) A memorandum from the Federation of Master Cotton Spinners' Associations Ltd., is presented in which some of the points raised by C. H. Brown[1] concerning the future of Ashmouni and Zagora cottons are answered. The Federation stresses the fact that Ashmouni cotton has certain unique qualifications and should continue to be grown. (B) The reply from the Egyptian Under-Secretary of State to the above memorandum gives brief details of the 1949-50 Cotton Crop Policy and the assurance that the growth of Zagora (Delta-grown Ashmouni) will not be interfered with or curtailed. ([1]*J. Textile Institute*, 1950, **41**, A1.) C—**10.**

Textile Labelling Bill Passed. *Pastoral Rev.*, 1950, **60**, 1101. The Goods (Textile Products) Bill, which has now passed through all stages of the Victorian Parliament, makes provision for the labelling of textile products with brands to inform the purchaser of the nature and quality of the goods. Textiles which contain at least 95 per cent. by weight of wool may be described as "woollen", "all wool" or "pure wool", and goods containing 90 per cent. by weight of

any fibre other than wool may be described as goods of that fibre, *e.g.*, "all rayon". Where different fibres are blended in textiles it is necessary to display either the percentage by weight of the constituents of the goods or a list of the fibres used in order of predominance. W—**10.**

Productivity: ("Know-how put into practice). *Target*, 1950, **3**, No. 8, 1-2, 7. Some methods which have proved useful in different mills for increasing productivity in woollen carding, spinning, and weaving are reported. W—**10.**

Spinning Quality in Wool: Its Importance in a Clip. *Pastoral Rev.*, 1950, **60**, 938. The influence on price of the spinning quality of wool is discussed in view of the fact that the difference in value between a medium fine merino and a fine crossbred was 7½ per cent. in 1937 and 63 per cent. in 1950. In 1940-41 60s and finer contributed 85·3 per cent. of the clip, compared with 73·7 per cent. in 1948-49. This tendency to swing away from merino production is regarded with misgiving. W—**10.**

Northern Ireland Flax Subsidy. *Linen Trade Circ.*, 1950, **36**, September, 30, 2. The N.I. Min. Agric. is to pay a subsidy of 6/4d. per stone to growers for dam-retted flax of the 1950 crop to bring up the price paid by spinners to the standard growers' prices. Spinners' prices range from 34/8d. to 27/2d. per stone, grades 1 to 6, for hand-scutched dam-retted flax, and from 36/2d. to 28/8d. per stone, grades 1 to 6, for turbine-scutched dam-retted flax. L—**10.**

11—INDUSTRIAL WELFARE, INDUSTRIAL PSYCHOLOGY AND EDUCATION

Skin Cancer in Cotton Spinning Industry from Use of Mineral Oils. C. N. D. Cruickshank and J. R. Squire. *Brit. J. Indust. Med.*, 1950, **7**, 1-11 (through *Bull. Hyg.*, 1950, **25**, 613). Industrial exposure to carcinogenic oils is known to set up skin cancers among cotton spinners. Results of some observations are given which show that skin cancer is occurring in the engineering industry, but the magnitude of the hazard is doubtful. Tests are in progress to test the possible carcinogenic properties of the oils used in the engineering shops. Non-carcinogenic "white oils" are being brought into use in the cotton industry. C—**11.**

Textile Organisation and Production. Chapters VI (*contd.*); **VII.** A. E. Clifford. *Fibres, Fabrics & Cordage*, 1950, **17**, No. 7, 229-234, 228. Interdepartmental routine, internal transport, wastage, labour and quality of articles produced, are discussed in relation to the planning of production. Chapter VII deals with the control of production, the fundamental information necessary for this purpose, the set-up of a production control department, and the calculation of productivity. L—**11.**

Textile Organisation and Production. Chapters VII (*contd.*); **VIII; IX.** A. E. Clifford. *Fibres, Fabrics & Cordage*, 1950, **17**, Nos. 8 and 9, 252-261; 300-304, 308. Matters discussed are : the use of the productivity index, relations with the workers, and the instruments of production control; the evaluation of work in terms of fourteen prime factors; motion and time study; work incentives; and piecework and premium bonus systems. L—**11.**

Textile Organisation and Production. Chap. IX (*contd.*). **Chap. X.** A. E. Clifford. *Fibres, Fabrics & Cordage*, 1950, **17**, No. 10, 336-341. Matters discussed are: Bonus incentive schemes; mass production, and standards of size and quality; inspection and testing, and the control of quality. L—**11.**

12—CONFERENCES AND EXHIBITIONS

Laundry Dry-cleaning and Allied Trades Exhibition, 1950. *Power Laundry*, 1950, **83**, 875, 877-891, 901-905. A review of the exhibition held at Olympia from September 28 to October 7, noting interesting exhibits of washing and dry-cleaning machines and materials. Short summary of the International Conference of Laundry Scientists. La—**12.**